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**ALASKA AGRICULTURAL EXPERIMENT STATIONS
SITKA, ALASKA**

Under the supervision of the
UNITED STATES DEPARTMENT OF AGRICULTURE

**REPORT OF THE
ALASKA AGRICULTURAL
EXPERIMENT STATIONS**

1926



Issued November, 1927



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ALASKA AGRICULTURAL EXPERIMENT STATIONS, SITKA, KODIAK, FAIRBANKS, AND MATANUSKA

[Under the supervision of the Office of Experiment Stations, United States Department of Agriculture]

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REPORT OF THE DIRECTOR

C. C. GEORGESON

The four agricultural experiment stations which are now in operation in Alaska are separated from one another by many hundreds of miles. Each station is located in a region which varies greatly from all other local regions in physiographic and climatic conditions. The experiments under way have therefore been planned to meet the requirements of the region in which each station is located.

Southeastern Alaska is rough, rugged, and covered with timber. Comparatively little land in this region is available for cultivation, and clearing for farming purposes is for the most part costly. Often such land as can be subdued at a reasonable price is peaty and must be drained. The heavy rains prevent grain crops from ripening, but the region is well adapted to horticulture. The climate is mild, with cool, moist summers, and moderate winters. In the region about Sitka the temperature seldom registers zero. The Sitka station is located on Baranoff Island and is devoted to the work of propagating and testing garden products, berry plants, fruit bushes, ornamental shrubbery, and hardy bulbs.

The Fairbanks station is located in the great Tanana Valley in latitude 64° 50'. The Tanana Valley, with part of the Yukon and the Susitna Valleys, has the essentials to make it eventually the granary of Alaska. The land in this region can be cleared at moderate cost, the soil is rich, and the rainfall light, varying from 10 to 16 inches annually. The summers are warm and the winters not too severe for the latitude. The summer temperature at times registers well above 90° F. and the winter temperature may fall to -60°, but the air is dry. The severe cold is not felt as it is in a moist climate, and when the temperature is low the wind is calm. The Fairbanks station is in the grain-growing region and therefore is devoted chiefly to experiments with grain and such other crops as

are suited to the climate. Destructive summer frosts do not occur in this region. On rare occasions a frost may occur in the middle of August, but at this date early grains are ripe. Vegetables make excellent growth at Fairbanks.

The Matanuska station is located in the heart of the fertile Matanuska Valley, 300 miles south of Fairbanks in latitude $61^{\circ} 30'$. The region is especially adapted to dairying and general farming. The land can be cleared at moderate cost and the cut timber used for fuel and for building. The Matanuska station is specializing in dairy-cattle breeding and grain growing, with emphasis on the production of feed for livestock. The growing season at Matanuska is longer than at Fairbanks, and summer frosts do not occur. The average rainfall is about 14 inches.

The Kodiak station on Kodiak Island is representative of the cattle-breeding and grazing country of southwestern Alaska. This



FIG. 1.—Exhibit of Sitka, Fairbanks, and Matanuska experiment stations at the Alaska Fair, Juneau, September, 1926

region has not as yet been stocked with livestock chiefly because of the lack of transportation facilities. The station is devoted to cattle breeding on a small scale and maintains a herd of Galloway cattle. The Galloway is preeminently the breed for the climatic conditions prevailing throughout Kodiak.

The stations participated in the Alaska Agricultural Fair, held at Juneau from September 15 to September 18, 1926. (Fig. 1.)

SITKA STATION

SMALL FRUITS

Strawberries.—Only hybrid strawberries of Sitka origin were grown. Three plants each of 200 varieties were continued, principally to maintain the varieties. Some others were grown on a

larger scale, chiefly for the purpose of obtaining runners for propagation. The berry crop was normal. Approximately 200 new seedling varieties bore fruit for the first time, and some of them give promise of becoming fair producers of high quality. The best station-produced numbers were planted on a new area to replace old plants that had outlived their usefulness. Early varieties bloomed by the last of April and ripened fruit by June 18. All the varieties were in full bloom by May and the crop ripened for the most part between July 1 and 15. The hybrids are vigorous and require more space than is usually allotted to commercial varieties in the States. Strawberry plants are set 3 feet apart each way, are never grown in matted rows, and the runners are not permitted to spread far from the mother plant. Favorable reports concerning the plants have been received from the interior, particularly from the Matanuska Valley, where the hybrids are the only strawberry plants which survive the winter. Crossbreeding is being continued.

Currants.—Currants are at home in Alaska. Probably no climate in the Territory is better for them than is that prevailing in the southeastern part, but the fruit is also successfully grown throughout the interior. Holland (*Long-bunch Holland*), a red variety of special merit, is being propagated for distribution. Red Dutch and White Dutch are standard varieties doing well. There is no question about successful currant growing in Alaska, and if a market were available it would be advisable to grow the fruit on a commercial scale.

Black currants.—Black currants grow well at Sitka and are readily propagated from cuttings. In northern Europe the fruit is much used as a jam for use in winter when colds are prevalent.

Gooseberries.—Standard varieties of gooseberries, including Champion, Houghton, Columbus, and Whitesmith are grown chiefly for propagation purposes. Of these Whitesmith gives the most satisfaction and produces large, luscious, green berries. Gooseberries are at home in Alaska and could be profitably grown on a large scale if there were a market for the fruit.

Raspberries.—The raspberry can be successfully grown over most of Alaska. Many varieties have been tested at the station. All do well, but all are not equally desirable. The varieties Cuthbert, Orange, Milan, Ranere (*St. Regis*), and Sunbeam fruited at the station during the year. Of these Cuthbert is by far the best and is the only variety now being grown for distribution. The Cuthbert bears a profusion of large luscious berries, and the canes attain a height of 6 or more feet and are well adapted to the climate. None of the much-advertised newer kinds compares with the Cuthbert.

Wineberry (*Rubus phænicolasius*).—The one plant of this species at the station produced some few berries from which the seed was washed out and sown.

Blackberries.—Blackberries have been repeatedly tested at the station but without success. In a favorable year like that of 1926 they ripen some fruit late in the summer, but the blackberry can not be recommended for general planting in Alaska. The few Logan plants (*Loganberry*) grew well, but produced little fruit, and the berries that set ripened late. The Logan can not be recommended for general planting.

Grapes.—A dozen grapevines of the variety Island Belle, which has been successful on Puget Sound, survived the winter at Sitka

without protection and made some growth during the summer. Their future behavior will be watched with interest, but it is not expected that grape growing can be made a success in Alaska.

FRUIT TREES

Apples.—Some 40 varieties of summer and fall apples were planted in the test orchard in 1903. In 1925, 22 years later, this small orchard was much reduced by the rejection of nearly all the varieties that had not borne fruit. All bloomed profusely, but set no fruit. Repeated trials with many varieties for more than 20 years have led to the conclusion that the Yellow Transparent, a summer apple in the States, is the only variety that can be recommended for general planting. It has matured fruit for several years at the station, and trees that were distributed by the station to settlers in southeastern Alaska are also bearing. Keswick (*Keswick's Codlin*), an English variety, always bears some fruit, which, however, never matures. The Oldenburg (*Duchess of Oldenburg*), a favorite summer variety in some parts of the States, usually bears, but the fruit is small and deformed.

Of the varieties of crab apples tried, Transcendant is the best, and matures fruit in favorable summers. Anoka, one of Doctor Hansen's hybrids which is successfully grown in South Dakota and elsewhere in the States, has been introduced for trial at the station, but the young trees have so far failed to bear.

Plums.—Some years ago hybrid plums were introduced at the station through the Office of Foreign Plant Introduction of the United States Department of Agriculture. Several of the trees are now upward of 10 feet high and make good growth year after year. However, they fail to produce blossoms, let alone fruit.

Cherries.—The varieties Montmorency, Wragg, and Black Tartarian at the station are not a success. The variety Duke of Richmond, which was trained against the south wall of the main building, yields an abundance of large red, sour cherries every year. Trees of the same variety grown in the open were not a success.

Miscellaneous.—A peach tree of the variety Triumph which was planted against the wall of the old propagating house bore some fruit during the summer, but apricot and sweet-cherry trees in the same locality produced no fruit. Evidently peaches, apricots, and sweet cherries can not be grown in the open at Sitka.

There are a few hazelnuts on the station grounds. One of them matured two nuts in the summer of 1926, the first that have ever been grown here.

The Sitka station is not favorably located for fruit trees and the poorly drained soil is hardly suited to their growth. The heavy rains, moreover, prevent them from doing well. The region about Haines and northward for some 20 miles, on the other hand, appears to be the best in southeastern Alaska for fruit growing. Trees which were distributed in that region some 18 or 20 years ago are said to be bearing fruit. Probably fruit-tree growing could be undertaken in cooperation with some of the settlers.

VEGETABLES

Vegetable growing has been reported upon in every annual report. Many of the vegetables which were grown in earlier years have now been supplanted by better varieties.

Beets.—Three varieties of beets were grown each on an area of 230 square feet. Crimson Globe yielded 105 pounds, Sunnyside 115 pounds, and Egyptian 102 pounds. All varieties grew to good size and were of excellent quality.

Carrots.—Of the varieties of carrots, each grown on an area of 230 square feet, Danvers Half Long yielded 205 pounds, Improved Long Orange 180 pounds, Amager 150 pounds, Chantenay 150 pounds, Butter 130 pounds, and Nantes 110 pounds. Of the varieties grown for stock feed, White Belgian produced 360 pounds on an area of 800 square feet and Yellow Champion Giant 390 pounds on an area of 1,000 square feet.

Turnips.—Only two varieties of turnips were grown. Petrowski from seed produced at the stations yielded 580 pounds on an area of 560 square feet and Purple Top 340 pounds on an area of 540 square feet.

Rutabagas.—Yellow Swedish rutabagas produced 590 pounds on an area of 810 square feet.

Cabbage.—Of the varieties of cabbage tested, Allhead yielded 412 pounds on an area of 345 square feet, Danish Ballhead 320 pounds on an area of 345 square feet, Mammoth Red 24 pounds on an area of 120 square feet, and Savoy 172 pounds on an area of 120 square feet.

Cauliflower.—Two varieties of cauliflower were grown. Dry Weather produced 60 pounds on an area of 120 square feet and Snowball 48 pounds on an area of 120 square feet.

Kale.—Kale is a most desirable winter green but is not appreciated as it should be. The variety Odense Market produced 550 pounds on an area of 600 square feet.

Brussels sprouts.—The variety Amager produced 24 pounds on an area of 690 square feet.

Kohl-rabi.—Bohemian Green produced 70 pounds on an area of 345 square feet.

Celery.—Paris Golden Self-Blanching produced 30 stalks on an area of 180 square feet and Golden Self-Blanching 82 stalks on an area of 234 square feet.

Onions.—White Welch, the only variety of onion grown, produced 22 pounds on an area of 230 square feet.

Leek.—Copenhagen produced 40 pounds on an area of 230 square feet.

Swiss chard.—Lucullus produced 210 pounds and Fordhook Giant 220 pounds, each on an area of 230 square feet.

Tomatoes.—Tomato plants were set in the open May 28. Several of the plants blossomed, but none set any fruit.

Peas.—Six varieties of peas were grown on an area of 80 square feet each. Alderman and Quite Content each produced 40 pounds, Telephone and Prince Edward each 35 pounds, and Alaska 25 pounds. Alaska is an early variety and is much used for canning. The pods attain usable size at about the same time, which is a desirable feature in a canning crop. The variety has been grown somewhat extensively at the Fairbanks station, chiefly because the crop matures before the earliest fall frosts occur. Seed of the Alaska variety has been sold to canners in the States with a view of testing its merits.

Rhubarb.—Exceptionally fine rhubarb can be grown in Alaska. A few dozen plants produced 800 pounds of rhubarb on an area of 200 square feet.

Lettuce.—The varieties Iceberg, New York or Wonderful, Hanson, and Trianon Cos did well, but Iceberg made the best yields of the head lettuce. The Cos variety is less popular than the true head lettuce.

Radishes.—The varieties White Icicle, Crimson Giant, Excelsior Forcing, and Saxa were grown each in a short row. The plants were attacked by root maggots and produced only a few merchantable radishes.

Spinach.—The varieties Princess Juliana, Basketfiller, and King of Denmark made poor growth and most of the plants ran to seed.

Herbs.—Ten varieties of herbs, including anis, chervil, coriander, dill, fennel, sage, sweet marjoram, sweet basil, summer savory, and thyme, were grown each in a few feet of row. All did well and can be grown in Alaska. Sage and thyme are perennials. Sage survives the winters at Sitka, but thyme survives only in mild winters.

Beans.—Bush Lima beans were a failure. Snap beans, which, however, were not tried at Sitka, can be grown successfully both at Fairbanks and at Matanuska, where the summers are warmer and drier than at Sitka.

ARTICHOKES

The White Jerusalem artichoke is grown at Sitka for stock feed and for the purpose of propagation. The tops grow 8 feet high and make excellent silage material. The tubers survive the winter at Sitka when left in the ground, whereas in severe winters they are killed in whole or in part at both the Fairbanks and Matanuska stations. The tubers are of good size but smaller than marketable potatoes. They should be left in the ground all winter. Tubers which are dug in the fall and placed in root cellars shrink and lose considerable of their vitality. Tubers which were grown in 1925 were found to be of fair size when dug in March, 1926. The White Jerusalem artichoke produces larger tubers than the common kinds such as are used in the south for hog feed. Six hundred pounds of tubers were shipped to the Matanuska station for planting as a silage crop. (See p. 25.) It is believed advisable to grow the tubers at Sitka and thence ship them to the more northern stations for planting. At Matanuska and Fairbanks the tubers probably could be left in the ground in winters when the snow lasts for a long time, but it is safer to grow them at Sitka and ship them elsewhere.

POTATOES

The Alaska stations have devoted much time to developing varieties of potatoes that shall be early, heavy yielders, and of fine quality. Nearly all the commercial varieties that can be found on the market have been tried in Alaska during the last 25 years and attempts made to develop new varieties from seed balls. Upward of 1,500 seedlings have been produced partly from seed balls that ripened at Sitka and partly from seed brought in from elsewhere. Some exceptionally fine varieties have been produced, but most of them proved to be inferior to varieties already on the market. Alaska needs a variety which will mature in time to escape early frosts. Earliness in potatoes, as in every other kind of plant, is inconsistent with heavy yields. Most of the commercial varieties of potatoes mature early enough in the coast region, but no variety which can

be said to mature before frost has yet been found for the Matanuska and Tanana Valleys, where frosts are likely to occur in late August. Hence the growing of seedling potatoes is being continued. The work is carried on at Sitka where the crop can receive closer attention than would be the case at the other stations, and promising seedlings are propagated for trial at the Fairbanks and Matanuska stations.

In 1926 20 hills each of 34 commercial varieties were grown in rows 3 feet apart with sets placed 15 inches apart. The season was favorable and the yields were comparable. All the potatoes were treated exactly alike. Whole potatoes were used for seed and prior to planting were immersed for two minutes in a formaldehyde solution (1 pint of 40 per cent formalin to 10 gallons of water) for scab control. An immersion for two minutes in a solution of this strength was found to be long enough for the small lot of seed required to plant 20 hills. The seed was then removed from the bath and placed under the benches in the propagation house to sprout. Sprouting has been found to quicken growth and improve yield. Length of sprout is as yet a disputed point and observations at the station show that the different varieties vary considerably in rapidity of sprouting.

If the potatoes are placed under the benches about March 25 they will have six weeks in which to sprout before planting time, usually between May 5 and May 15. The sprouts average about 2 inches long and are planted so that the tips will lie immediately below the surface of the soil. When the tops are 5 or 6 inches high the potatoes are hilled up and the hilling process is repeated twice some three weeks apart, depending somewhat on the season and the growth of the plants. Hilling up may not be required more than twice in a cool, rainy summer when growth is slow.

In connection with potato growing at Sitka, it should be noted that the soil is very uneven. A sufficiently large area can not be found to accommodate all the varieties grown on soil that is exactly alike in quality.

Of the 34 commercial varieties grown, the 10 giving the best results during the year were, in the order of their merit, White Bliss 68 pounds, Norcross 66 pounds, New Queen 58 pounds, Model Market 57 pounds, Earliest-of-All 56 pounds, Early John 53 pounds, Snowball 52 pounds, Snowflake 47 pounds, Green Mountain 47 pounds, and White Rose 44 pounds. The remaining 24 varieties were inferior in yield. The 10 best varieties were of fine quality, had medium-sized tubers, with shallow eyes, and were medium early. In point of earliness, however, none of them was ideal. The ground was not fertilized for this crop, and the yields are conclusive only for the present season. To make the comparison conclusive even for this particular season the experiment would have to be replicated four or five times on differently located plats and an average obtained of the yields from all the plats. If the White Bliss, for example, average the heaviest yields in each instance it might be considered the best variety so far as yield and the particular season are concerned. However, the available space at the Sitka station is not large enough to permit replications in this manner.

Seedling potatoes.—One hundred and forty seedling varieties were also tested. Most of them were planted in lots of 20 hills, but in many instances there was not seed enough even for 20 hills. Only a

few of the seedling varieties measured up to the best commercial varieties already listed. Some of the seedlings were earlier than the commercial varieties, but they were also inferior in yield. The regions that are adapted to potato growing are more particularly in the Tanana and Matanuska Valleys, and the best seedlings of Sitka origin are tested at the two northern stations. The majority of seedlings are discarded after two or three years' trial.

ORNAMENTALS

Experiments in bulb growing.—In 1923 the Sitka station obtained some hundreds of bulbs of narcissus and tulips from the plant-introduction garden at Bellingham, Wash., to ascertain the possibility of propagating bulbous plants at Sitka and of growing the bulblets to blooming size. The bulbs were planted in late September, wintered well, and bloomed in the spring of 1924. When the tops died down in early July the bulbs were lifted, separated, and dried, and the bulblets that had formed were sorted and prepared for planting in late September. The plantings bloomed in 1925 and the lifting, sorting, and planting process was repeated. In 1926 many of the larger bulblets bloomed, and, together with the older bulbs, produced a galaxy of flowers during the spring and early summer. When the bulbs were lifted at the close of the next blooming season most of the varieties showed a large increase in number of bulblets. As the result of the large increase in bulbs over the original few hundred specimens some 10,016 narcissus and 17,456 tulip bulbs of all sizes were planted at the station early in October. Two-thirds of these were bulblets originating at Sitka. Experiments with bulbs at Sitka during the last three years have demonstrated that narcissus and tulips can be successfully grown on a commercial scale in southeastern Alaska. Lovers of these beautiful flowers should grow their own bulbs, more especially now that quarantine regulations restrict their importation and the bulbs can not be distributed in interstate commerce until they have been inspected and certified to be free from insect pests.

English iris.—The few English iris bulbs which were obtained in 1924 from the same source as the other bulbs also have bloomed and increased in a satisfactory manner. There is no question about their suitability to the climate in southeastern Alaska. A total of 2,800 bulbs which were produced at Sitka in the summer of 1926 were planted in the fall and are expected to bloom in 1927.

Gladiolus.—The gladiolus also has been tried. (Fig. 2.) This plant originally came from Africa and is not so hardy as are the narcissus and the tulip. Gladiolus corms must be wintered in a frost-free place and planted in the spring. Root formation takes time, and the flowering stems do not appear even on the earliest varieties before early July. The blooming period is therefore chiefly in August, and late-blooming varieties may be caught by cold weather before blooming. The station purchased only a few full-grown corms and also a few thousand cormels, which were offered in the open market at \$1 a thousand. These were planted in 1924 and grew successfully. The corms were lifted in the fall and planted again in the spring of 1925. Some of them bloomed. Many cormels formed and in the spring of 1926 about 1,000 corms of blooming size and several thousand cormels which had formed at the station were planted. During August and early September the blooms made a fine showing. With-

out doubt the gladiolus can be grown and propagated in southeastern Alaska. Several thousand corms are now in storage and will be planted in May, 1927. Garden lovers in Alaska can readily purchase cormels from seedsmen at low cost. The cormels should be planted about the middle of May. Often cormels which seem to be too small to bloom will send up a flower stalk. A selection should be made from the earliest bloomers for perpetuating.

The regal lily.—The hardy lily (*Lilium regale* or *L. myriophyllum*) is becoming a general favorite all over the country. The plant grows wild in China, whence it was introduced. It grows to a height of 3 feet, produces a myriad of narrow leaves, and large, fragrant blooms. Bulbs which were raised from seed in the propagating house in the spring of 1924 were transferred to the open later. Approximately



FIG. 2.—Gladiolus, Sitka station

50 per cent of the plants survived the winter of 1924–25 without protection, and a large percentage of these again survived the winter of 1925–26, but suffered from the excessive rains. The lily requires good drainage. In the fall of 1926 upward of 300 seedlings were planted in a specially prepared bed, which was filled to a depth of 4 inches with coarse gravel and topped with a layer of soil 6 inches deep. The plants are expected to survive the winter without protection.

Annuals.—The calendula is perhaps the most satisfactory of the many annuals grown in Alaska. Seed can be obtained of a number of colored varieties ranging from white to orange and red. It is of easy cultivation and should be sown in the propagating house or in a window box in late March. The plants when an inch high should be pricked out 2 inches apart and set in other boxes. By early May the plants will be ready to place in the open. They should then be

planted 6 to 8 inches apart, but the distance can vary with the available space and the available plants. They bloom all summer.

The snapdragon can be obtained in many shades of color ranging from yellow to red and dark maroon. It is raised from seed like the calendula.

Stocks (six-weeks,), a sweet-scented flower, is grown in the same manner as the calendula and does well all over Alaska.

Tall-growing nasturtiums may be planted against posts or the side of the house or used to screen some unsightly spot. The dwarf kinds are used for bedding and make an especially effective border around flower beds or along walks. The seed should be planted either in small pots or boxes and the resulting young plants transplanted to the open when the weather permits. They are tender and should not be set out before early May. At Sitka the seed is planted in strawberry boxes. The bottom is pulled from the boxes when the young plants are ready for transplanting. This is done without disturbing the roots.

Annual chrysanthemums should be treated the same as nasturtiums are treated. The chrysanthemum grows 2 feet high and therefore is not suitable as a border plant.

Sweet peas do exceptionally well all over Alaska. The seed should be planted in strawberry boxes in late March and the resulting young plants allowed to remain there until they are ready for transplanting. Sweet peas should be provided with a trellis to climb upon. Wire netting makes the best trellis, but in the absence of this kind of support they can be trained over bushes or brush which is set in the ground for the purpose. Under favorable conditions sweet peas grow 8 feet high and provide a mass of sweet-scented flowers from July to the end of summer.

Other annuals doing well in Alaska include African marigolds and daisies, the larkspur, phlox, clarkia, godetia, petunia, poppy, and salpiglossis. Candytuft and other dwarf-growing flowering varieties make splendid border plants.

Perennials.—A number of perennials survive the winter in southeastern Alaska. The phlox can be obtained in various colors. Of the phloxes tried, Miss Lingard has done exceptionally well at Sitka. The Shasta daisy is at home in Alaska. *Anthemis tinctoria*, an especially showy perennial, bears a mass of yellow flowers through a long period. The oriental poppy produces large, showy red flowers during early summer. Unfortunately this perennial blooms for a short time only, but the foliage is ornamental after the flowers have gone. The columbine is a satisfactory ornamental all over southeastern Alaska. Lupines grown at the station produce spikes of blue flowers. The larkspur (*Delphinium*) is a great favorite and the flowers are mostly rich shades of blue. The foxglove (*Digitalis*) produces spikes which grow 6 feet high and are covered with bell-like flowers. *Lychnis* is a vigorous-growing plant with bright red flowers. All these perennials grow 3 to 5 feet high and therefore should be planted in the background of the bed. Plants making successful border decorations include the primrose (cowslip), forget-me-not (*Myosotis*), English daisy (*Bellis perennis*), pansy, and pink. *Cerastium tomentosum* and *Arabis alpina* are valuable for rockwork and bear clusters of white flowers.

FAIRBANKS STATION

The season of 1926 was favorable throughout the Tanana Valley. The last killing frost in the spring occurred May 24 and the first killing frost in the fall September 16, giving a frost-free period of 115 days. The freeze was not hard enough to stop fall plowing before October 13. The rainfall was slightly lighter than normal and the summer temperature in consequence was a trifle higher than normal.

STATION IMPROVEMENTS

One thousand posts were cut in the woods and set during the spring. Three hundred and twenty rods of fence was built and an equal length of old fence was repaired.

Ten acres of pasture land along the railroad near the station buildings were cleared of brush and deadfalls preparatory to seeding with grasses. The moss still covering the land can be removed by means of a spike-toothed harrow prior to seeding. The pasture will be planted with a mixture of brome grass, slender wheatgrass, Kentucky bluegrass, and alsike clover.

A hay shed 36 by 50 feet and 14 feet to the eaves, was constructed in the north field. Posts 6 by 6 inches were set in concrete to support the roof, which is of corrugated iron. The implement shed was enlarged 20 by 36 feet, making the whole now 32 by 52 feet. The material for the sheds was taken from dismantled buildings at Rampart.

A saw rig was constructed for use in the woods in cutting timber into lengths suitable for fuel. The rig consists of a concrete block mounted on a skid carrying at one end a 4 horsepower engine and at the other a circular saw. The outfit can be drawn by either team or tractor to any place desired. The heavy concrete block holds the rig in position when it is in operation.

LIVESTOCK

The livestock of the station includes 1 bay mare, 11 years old; 1 black gelding, 15 years old; 1 boar, Longfellow Pattern, 7 years old last July; 1 brood sow, Sweepstakes Lady, 7 years old last September; 1 young sow a year old last July; 1 sow pig, born July 18, 1926, all American Hampshires; two cows, Fidelia Douglas Best, born April 18, 1920, and Fidelia Fair, born April 15, 1923, and 1 bull, Mollie Boy, born April 6, 1921, all Galloways; 3 yak, a polled bull which was received July, 1919, when approximately 2 years old, 1 horned cow, received September 24, 1923 (age unknown), and 1 heifer born April 12, 1924; and 6 Galloway-yak hybrids. (Figs. 3 and 4.) Hybrid No. 1 was born May 9, 1924. This polled animal is the result of a cross between a polled yak bull and Fidelia Queen (No. 48152) and was first bred October 14, 1925, to a polled yak. Her first calf, a heifer, was born July 5, 1926. She is polled and is three-fourths yak. Hybrid No. 2, a polled heifer, was born November 30, 1924. She was sired by a polled yak out of Fidelia Douglas Best (No. 48150). Hybrid No. 3, a polled heifer, was born February 6, 1925. She is the result of a cross between a polled yak and Fidelia Fair. Hybrid No. 4, a polled bull, was born January 17, 1926, and was sired by a polled yak out of Fidelia Fair. Hybrid No. 5, a polled

bull, the product of a polled yak crossed with Fidelia Douglas Best, was born June 4, 1926. Hybrid No. 6, a polled heifer, is the result of a cross between a polled yak and Hybrid No. 1 and was born July 5, 1926. She is three-fourths yak.

The Galloway cow Fidelia Douglas Best is proving to be a phenomenal producer of very rich milk. Her best month so far was July, 1926, when she produced 1,204 pounds of milk containing nearly 6 per cent of butterfat.

The two Hampshire brood sows and one Hampshire boar are getting too heavy for active pasturing. The boar weighs 650 pounds and will likely be replaced by a young boar in the early summer of 1927. One of the old sows, Lady Gold Dust, failed to produce a litter last year, and Sweepstakes Lady produced 10 pigs, only 5 of which were raised.



FIG. 3.—Polled yak bull, the sire of all the hybrids. Received at the Fairbanks station in 1919

FIELD WORK

Hay production.—Plenty of winter feed is needed to supply the many animals at the station. Probably the cheapest way of producing feed at Fairbanks is to grow a mixture of oats and vetch for hay. Approximately 60 acres of north-slope land was seeded with oats and purple vetch in the ratio of 8 parts of oats to 1 part of vetch. Sample weighings indicated a production of slightly more than 1 ton of cured hay per acre.

Prior to seeding the oats received an antismut treatment. The grain was sprinkled with a formaldehyde solution containing equal parts by volume of water and was thoroughly turned at least three times during the sprinkling to expose all the seed to treatment. The grain was then covered with canvas and let stand for four hours, after which seeding began. Sprinkling and turning offer an advantage over immersing the grain in a weak solution of formaldehyde, since the oats do not swell, and seeding can proceed as with dry, untreated oats. The treatment was effective and did not perceptibly lessen vitality.

In the north-slope land the ground ice thaws more readily in certain spots than it does as a whole, and the soil in these spots settles and forms hollows. The hollows, some of which are 5 feet deep, interfere with cultivation. The ground ice gradually recedes year by year and the condition can be remedied temporarily by filling in the hollows. The north-slope land is infested with a growth of horsetail (*Equisetum* sp.) which prohibits the production of normal crops. The weed propagates readily by means of its spreading rootstocks and is hard to eradicate. By sowing brome grass on the infested area it may be possible to smother out the horsetail, or at least considerably reduce its growth. Sown on 2 acres of land at Matanuska, brome grass produced a very heavy sod and likewise a good crop of hay.

Fall plowing of stubble land.—Some of the Tanana Valley farmers do not consider it necessary to fall plow stubble land oftener than every second year. This of course applies to land that is kept in



FIG. 4.—Galloway-yak hybrids and yak heifer (third from left), Fairbanks station

grain year after year, as is the local practice. Suitable land that has not been fall plowed becomes ready for seeding earlier than fall-plowed land because the snow melts rapidly once the stubble reaches the surface and leaves a firm seed bed. The stubble absorbs heat and aids the process of melting by making many small breaks in the covering of snow. Fall plowing with tractor power at the station was found to cost approximately \$2.75 per acre. All heavy soils should be fall plowed, and sandy or light loamy soils may be prepared in the spring for seeding by thorough disking.

GRAIN CROPS

Grains were again grown to permit comparison of their earliness and yield, or their adaptability for hay or silage. The season of 1926 was so favorable that varieties which usually are late were almost as early as the well-known early varieties. Comparison for earliness was therefore noneffective. Nevertheless, since late-maturing varieties have often been caught by early frost at this

station earliness will always have to be considered in any variety of grain tested here.

Wheat.—Sown May 9 on $5\frac{1}{2}$ acres of land, Siberian No. 1 wheat made a good stand. The grain headed June 20 and was fully ripe July 31, 83 days after seeding. This is the shortest period in which a wheat crop has been matured at Fairbanks. Siberian No. 1 yielded at the rate of 17 bushels per acre and is the earliest variety tested at the Alaska stations. The crop was grown for seed. Probably a later and larger growing variety would have outyielded Siberian No. 1 by several bushels.

Seventeen one-fortieth-acre plats were seeded with wheat varieties chiefly for the purpose of comparing their earliness, but the season was so favorable to growth as to nullify results. Seeding was done May 15 and the grains ripened from August 6 to August 14. The yields varied from 16 to $33\frac{1}{3}$ bushels per acre. Great value can not be attached to the comparative yields, however, because the plats were not replicated. Errors were probably magnified in calculating acre yields from such small areas and production was influenced by the inevitable variation in the soil.

The three early varieties, of Russian origin, Siberian No. 1, Tulun, and H. G. made the lightest yields, whereas the larger and later varieties gave the highest yield in weight of grain. Romanow, a variety of Russian origin which has been grown at the stations for many years, is a medium-early wheat which does well in favorable seasons. It yielded at the rate of 32 bushels per acre. Red Bobs, a later introduction and a favorite in Canada and in some parts of the Northern States, yielded at the rate of 26.8 bushels per acre. Ruby, a variety originating at the Ottawa Experiment Station, Canada, is considered a suitable early wheat for Alaska. Seed of this variety was imported from South Dakota by the farmers of the Tanana Valley in 1922 and gave fairly good satisfaction.

Of the 12 hybrid wheats tested, Hybrid No. 24, a cross between Red Fife and Ladoga, produced the highest yield, 33.3 bushels per acre. Hybrid No. 24 is usually a late variety, but this year it surpassed all other sorts in yield. Four of the hybrids were obtained from the experiment station at Davis, Calif. They were the latest to mature and only medium yielders.

Barley.—Hybrid No. 19, a hull-less barley, was sown May 13 on a 1.6-acre plat. Prior to planting the seed was treated with formaldehyde for smut control. The crop was ripe July 31, 79 days after seeding, and yielded at the rate of 24 bushels (60 pounds to the bushel) per acre.

Fourteen one-fortieth-acre plats were also seeded to barley. None of the plats were fertilized because the area received commercial fertilizer last year at the rate of 400 pounds per acre to learn the effect on potatoes. However, the barley failed to indicate that it had benefited by any fertilizer elements remaining in the soil. Nine of the 14 plats were seeded to hybrids of station production. The commercial varieties were Hansen, Pamir, Eagle, Manshury, and Boehmer. Sown May 15, Pamir, a small, six-rowed, bearded barley, was ripe July 20, 66 days after seeding. Pamir was originally obtained through the United States Department of Agriculture from a plateau (11,000 feet elevation) in the Pamir Mountains, in central Asia.

Pamir has been the standard variety in point of earliness for grain growing at the stations and has been used in hybridization work in the hope of transmitting its earliness to larger-growing varieties. For example, Pamir is one of the grandparents of barley Hybrid No. 19, which is the leading hybrid at the station. During the test, Hybrid No. 28 made the highest yield, producing at the rate of 55 bushels per acre. Hybrid No. 28 will probably never be popular because of its black color, which, however, does not detract from its feeding qualities. The hybrid is the result of a cross between Hybrid No. 14, a black, two-rowed, bearded, early variety, and Hansen, a six-rowed, bearded, late variety. Hybrid No. 28 has taken all its characteristics except color from the staminate parent, Hansen. The hybrid is a vigorous grower and has been sown with vetches for silage and hay at the Matanuska station. Hybrid No. 14 is the result of a cross between Hull-less (S. P. I. No. 19851), a smooth, six-rowed, medium early variety, and Abyssinian (G. I. No. 362), a bearded, black, two-rowed, early variety. The black characteristic is dominant not only in Hybrid No. 14, but also in Hybrid No. 28, which is a grandchild of the cross.

Oats.—Thirteen one-fortieth-acre plats and three one-fiftieth-acre plats were seeded May 15 to a number of varieties with a view to obtaining data on ripening. However, as was the case with wheat and barley, the season was favorable to growth and nullified results. There was a difference of only four days between the ripening of the earliest and the latest varieties. Practically all ripened early. The commercial kinds seeded were Kanota, Victoria, Kherson, Disco, Heavyweight, Wisconsin Pedigree No. 7, Canadian, Leader, Twentieth Century, and Alaska Black. Victoria and Leader, which are always late in unfavorable seasons this year were the heaviest yielders, and produced at the rate of 77.5 bushels per acre. Five of the plats were seeded to station hybrids, but since these have been bred for earliness they do not compare with Victoria and Leader.

ROTATION PLATS

In 1925 three series of rotations were begun on 68 one-tenth-acre plats. The plats are permanently marked with iron stakes which have been driven into the ground at the corners. Twenty-four of the plats are devoted to a six-year rotation. Wheat, peas, barley, vetch, oats, and roots are to be grown on plats 1 to 6, respectively, the first year. Peas are to be followed by wheat, barley by peas, vetch by barley, oats by vetch, roots by oats, and wheat by roots the second year. This order is to be continued indefinitely. The six crops are replicated four times in the 24 plats.

Wheat, oats and vetch, barley, and peas are to be grown in a four-year rotation. Oats and vetch are to be followed by wheat, barley by oats and vetch, peas by barley, and wheat by peas the second year, and so on indefinitely. The four crops are replicated four times in 16 plats. Barley, vetch, and oats and vetch are to be grown in a three-year rotation. Vetch is to be followed by barley, oats and vetch by vetch, and barley by oats and vetch the second year, and so on indefinitely. The three crops are replicated four times in 12 plats.

The three-year rotation was planned especially with a view to producing feed for the station animals. Sixteen plats are to be continuously cropped with wheat, barley, oats, and peas for seed without rotation. The four crops are replicated four times, each being set as far from the other crops as space permits.

The first set of four permanent plats is at the beginning of the six-year rotation, the second set at the beginning of the four-year rotation, the third set at the beginning of the three-year rotation, and the fourth set is at the end of the three-year rotation. All the plats lie in one long strip side by side.

Pasture and red clover would inevitably enter into rotation schemes in the more southerly latitudes. It is impracticable to introduce pasture on plats which are only 0.1 acre in size. If the experiment were conducted on a 2-acre scale, which is twenty times as large as the present series, pasture could be grown. Red clover invariably winterkills in interior Alaska. Instead of clover other nitrogen-producing legumes, such as peas and vetches which are annual crops, must be used. Perennial vetch has not been introduced. At least four years must elapse before yields of the rotation plats can be compared with one another or with yields of the standard of the continuously grown crops in the permanent plats. Yields are therefore not given although they have been placed on record at the station. Both growth and yield of the rotation plats were in keeping with the favorable season.

PEAS

Three acres were seeded to Canadian field peas May 1. Harvested August 4, although not altogether mature, the crop was threshed September 28, and yielded 3,130 pounds of seed. The variety Alaska, seeded on $5\frac{1}{2}$ acres of land May 10, nine days later than the Canadian variety, began to bloom June 17 before the Canadian pea showed bloom. The crop was harvested July 26 and yielded 2,947 pounds of fully ripe seed. An area of $1\frac{3}{4}$ acres of Alaska peas was plowed under to determine the effectiveness of the variety as green manure. All the peas were drilled in rows 30 inches apart to permit cultivation. The Canadian field pea makes a heavier growth than the Alaska and yields more seed. On the other hand, the Alaska has the advantage of ripening all its seed at practically the same time. The crops were cured on racks in the field, and the spaces between the racks were immediately plowed shallow and seeded with oats and peas. Germination was rapid, and the late growth produced a fine crop of green manure before frost. Alaska peas produced edible pods in 38 days after seeding.

POTATOES

Potatoes were planted May 18 on land that had been treated with complete fertilizer at the rate of 500 pounds per acre. The hills were spaced 18 inches apart in rows 3 feet apart to permit comparison under identical growing conditions. Prior to planting the seed was sprouted for three weeks. Often the tops are killed by frosts in late August. This year frost did not occur until September 16, after which showers delayed digging until September 23. The total yield of all the varieties was 6,015 pounds, or at the rate of 238.7 bushels (60 pounds to the bushel) per acre. The purple-blossomed variety

of Irish Cobbler was taken as the standard and made an average yield of 227.9 bushels per acre. This variety occupied 17 rows. The white-blossomed variety of Irish Cobbler made an average yield of 235.2 bushels per acre.

Varieties of Sitka origin and their yields per acre include Etta, 238.1 bushels; June, 263.7 bushels; Jean, 255.4 bushels; Kate, 292.1 bushels; and Alice, 215.2 bushels. The commercial varieties and their yields per acre include White Harvest, 98.3 bushels; Burpee's Superior, 272.8 bushels; Early Ohio, 212.4 bushels; Alaska Beauty, 173.9 bushels; American Wonder, 290.3 bushels; Eureka, 253.6 bushels; and Ohio Junior, 239.9 bushels. There were two rows of each of all the varieties except in the case of White Harvest, which occupied only 55 hills.

SUGAR BEETS

In the spring of 1926 an informal agreement was entered into with the Alaska Railroad officials whereby the Fairbanks and the Matanuska stations each were to devote 1 acre of land to sugar beets to determine the adaptability of the crop to Alaska, the sugar content, and the cost of production on a field scale. Accordingly, a rectangular area, 230 by 189.4 feet, was laid out on a southern hillside having a gentle slope. The land had been fall-plowed and in the spring given a thorough disking and harrowing. Prior to seeding 204 pounds of fertilizer (sodium nitrate 104 pounds, and potassium sulphate and superphosphate 50 pounds each) was broadcasted. Another 204 pounds of the same mixture was drilled in along the rows June 29. A third application of 200 pounds of muriate of potash was to have been given, but was received too late for use.

On May 12 the seed was drilled in rows 20 inches apart, a 5-hoe plat drill being used for the purpose. Immediately after seeding, the land was rolled. The seed bed was in excellent condition, and germination was prompt, resulting in a good stand. The plants were blocked and thinned in the usual manner and cultivated twice with a horse-drawn machine and once by hand. The field was kept free from weeds and in fine tilth. During June and July the weather was fairly favorable but too dry for maximum growth. On August 2 and August 3, 0.39 inch of rain fell, forcing the beets into rapid growth. During the following 13 days there was no rain and the daily temperature varied from 76 to 89° F. In consequence, the beets wilted and many of the leaves turned yellow. With the coming of frequent showers in late August the plants recovered to some extent, but they never regained their former thrifty appearance, and even a fair crop was not to be expected.

Because frost threatened, harvesting was begun September 18. The roots were pulled by hand, topped, and sacked. They were then stored until time for delivery to the railroad officials October 30. The crop had a total weight of 4.4 tons. The roots were rather small, averaging less than a pound each, an occasional root weighing 2 pounds. Returns from the Utah-Idaho Sugar Co. showed that the beets had a sugar content varying from 16.5 to 17.4 per cent, which is fairly satisfactory. Probably the most discouraging feature was the small size of the roots with a resultant low tonnage. Sidehill land is entirely too dry to produce satisfactory tonnage. Yields

probably would have been heavier and cultivation and harvesting costs less had the crop been grown on some of the bottom lands or in moist swales. The high cost of production is a serious drawback to sugar-beet growing in Alaska. Shipping the beets to the States is out of the question. A local sugar-beet factory would need at least 5,000 acres of land for the crop and such an area can not be put under cultivation for some years.

Table 1 gives the cost of growing 4.4 tons of sugar beets at the Fairbanks station. In checking over the items it should be remembered that the heavy charges doubtless would have been reduced had experienced labor and suitable machinery been available.

TABLE 1.—*Cost of growing 4.4 tons of sugar beets on an acre plat at the Fairbanks station, 1926*

| | |
|--|-----------|
| Labor: | |
| Plowing..... | \$3. 00 |
| Disking, harrowing, and rolling..... | 3. 48 |
| Seeding..... | 6. 40 |
| Treating with fertilizer..... | 6. 40 |
| Thinning..... | 48. 00 |
| Cultivating..... | 48. 00 |
| Spraying..... | 6. 40 |
| Harvesting (including pulling, topping, sacking, and hauling)..... | 64. 00 |
| Total cost of labor..... | \$185. 68 |
| Materials: | |
| Seed..... | 5. 26 |
| Fertilizer..... | 14. 36 |
| Spraying material..... | . 60 |
| Total cost of materials..... | 20. 22 |
| Total cost of labor and materials..... | 205. 90 |

ARTICHOKES

A small planting of White Jerusalem artichokes has been grown for three winters without protection against freezing except that provided by the usual light blanket of snow. Each summer the growth of tops has been stronger and the tuber clusters larger. The tubers are small, the largest being the size of an English walnut. The green stalks were refused by cows when offered to them. However, cattle frequently refuse forage that is new to them, palatability and acceptability being often a matter of acquired taste.

SUNFLOWERS

An early hybrid sunflower, planted in two rows of rich soil, grew rapidly and luxuriantly. Seeding was done May 6, the first heads appeared July 1, and about 50 per cent of the seed ripened August 1. The hybrid is far superior to the Mammoth Russian variety from the standpoint of seed production, but not so large. The stalks were cut and fed to cattle and the leaves were eaten with evident relish. Enough seed is now on hand to grow the crop on a field scale. Like the Mammoth Russian variety, the hybrid fails to give satisfactory results unless it is grown on rich ground.

TRUCK CROPS

Only the common varieties of vegetables were grown. The Alaska variety of pea was in bloom June 15 and the new peas were large enough to use 11 days later. Radishes grew quickly. Those that were not used promptly bolted and produced an abundance of ripe seed. Onions from sets did well. Early Jersey Wakefield and Copenhagen Market varieties of cabbage, both from station-grown seed, produced solid, medium-sized heads weighing 8 to 16 pounds. Of the bush beans, Currie Rust Proof, Early Six Weeks, and Stringless Green Pod bore abundantly until they were cut down by the first freeze September 16. A few tomato plants grew fairly well in the open and ripened some fruit.

FLOWERS

Poppies, stocks, snapdragons, and many other varieties of annuals were grown again this year with success. The five peony roots that were set in the open in the spring of 1924 wintered successfully. The three early varieties bloomed and made a handsome showing. The late kinds did not bloom. Sweet William and Chinese pinks which were set in the open in the spring of 1925, wintered and produced a heavy bloom. A dozen plants of Shasta daisies were taken up in the fall of 1925, wintered in boxes in the root cellar, and set out again in the open, where they bloomed.

MATANUSKA STATION

The Matanuska experiment station is located in latitude $61^{\circ} 30'$, about 2 miles from the head of Knik Arm on Cook Inlet in the region known as the Matanuska Valley. (Fig. 5.) Climatic conditions in this region are similar to those prevailing in the Northern States. According to the records of the United States Weather Bureau, the temperature at Fairbanks falls to zero and below during an average of 123 days of the year, whereas at Matanuska the zero mark is recorded during an average of 61 days only. The maximum temperature, 84° F., occurred in June, and the minimum temperature, -14° , in February. The rainfall during May and June, 1926, totaled only 0.94 inch, which is sufficient for grain crops. During July and August a rainfall of 7 inches seriously interfered with harvesting. The summer of 1926 was typical of Matanuska. Spring began early. The last frost in spring occurred April 28, and the first killing frost in the fall October 7, making a frost-free period of 162 days. Summer frosts, such as are peculiar to the northern tier of States and Canada, have not been found to occur at Matanuska in nine years.

The station owns 920 acres of land, a little less than one-third of which can be considered as suitable for cultivation. The greater part of the land is made up of rocky ravines with small lakes and a growth of spruce and some birch and cottonwood trees. One hundred acres at the station have been cleared and brought under cultivation. This area is insufficient to produce feed for the station livestock, including the herd, chiefly dairy cattle, and aggregating 53 head on January 1, 1927, the greater number of which were transferred from Kodiak to Matanuska in 1925, a small flock of sheep,

and some horses. An additional area of 59 acres was therefore rented from neighboring farmers, making the total area cultivated by the station 159 acres. The greatest need of the station at this time is an extension of the cultivated area to provide feed for the experimental herd of dairy cattle.

At Matanuska many varieties of spring wheat, barley, oats, potatoes, peas, vetches, and roots were seeded from April 13 to May 24. Variety tests were continued for the purpose of comparing commercial varieties of grains with one another and with hybrid varieties that have been produced by the stations in past years. Winter rye is the only fall-seeded crop that has so far succeeded at Matanuska. The crop is not in demand and is grown partly for experimental purposes and partly to furnish winter feed for the sheep and young stock. Of the 159 acres under cultivation, 26 were in oats for grain, 5 were in oats for silage, and 50 were in oats and vetch; 16 were in barley



FIG. 5.—General view of buildings and experimental plats looking east, Matanuska station

and vetch, and 10 were in barley for grain; three-fourths of an acre was in winter rye; $8\frac{3}{4}$ acres were in wheat; $17\frac{1}{2}$ acres were in peas and oats; 6 were in peas; 10 were in grass; and 9 acres were in miscellaneous crops including sugar beets, potatoes, artichokes, nursery stock, and berries.

Of the oats which was grown on a field scale the best yielders included Swedish Select, 87.5 bushels per acre; Leader, 85.5 bushels per acre; and Climax, 74.8 bushels per acre. Green forage of all kinds, but mostly of oats and vetch, was made into silage (169 tons) and hay (48 tons) or fed (40 tons) to the station animals.

PLAT WORK WITH GRAINS

Wheat.—Table 2 gives a record of 13 varieties of wheat which were grown for comparison. It was impracticable to have all the plats of exactly the same size. The calculated yield per acre shows that the late-maturing varieties are the best yielders.

TABLE 2.—*Results of variety test with wheat at the Matanuska station, 1926*

| Variety | Date seeded | Date ripe | Length of time required to mature from seeding | Rate of yield per acre |
|----------------------------------|-------------|-----------|--|------------------------|
| | | | Days | Bushels |
| Tulun..... | May 17 | Aug. 15 | 90 | 10.00 |
| Irkutsk..... | do | Aug. 18 | 93 | 14.00 |
| Beta..... | do | Aug. 15 | 90 | 9.00 |
| Siberian No. 1..... | do | Aug. 20 | 95 | 14.40 |
| Omega..... | May 18 | Aug. 15 | 89 | 11.40 |
| Ruby..... | do | Aug. 20 | 94 | 12.70 |
| Hybrid No. 63..... | do | do | 94 | 10.20 |
| H. G..... | do | do | 94 | 14.40 |
| Federation (C. I. No. 4733)..... | do | Aug. 30 | 104 | 13.90 |
| Kota..... | do | do | 104 | 11.90 |
| Hybrid No. 64..... | do | do | 104 | 12.15 |
| Red Bobs..... | do | do | 104 | 18.20 |
| Federation No. 503..... | do | do | 104 | 15.50 |

Samples of Russian spring wheat, obtained from D. N. Borodin, representative of the Soviet Department of Agriculture, were seeded May 22. All the varieties were up May 29, all ripened unevenly, and most of them were late in maturing. Another year's trial should determine their value for Alaska. The varieties are known only by numbers. Their condition August 27 is noted in Table 3.

TABLE 3.—*Variety test with Russian spring wheats at the Matanuska station, 1926*

| Variety No. | Stand | Height | Remarks |
|-------------|----------|--------|--|
| | Per cent | Inches | |
| 118..... | 90 | 42 | Dough stage; smooth; lodged. |
| 119..... | 100 | 48 | Dough stage; bearded; lodged. |
| 120..... | 90 | 40 | Soft dough; smooth; 90 per cent lodged. |
| 124..... | 95 | 44 | Dough stage; bearded; 95 per cent lodged. |
| 125..... | 98 | 46 | Ripe in 97 days; dark, smooth 2-inch heads; inclined to lodge. |
| 126..... | 98 | 50 | Dough stage; dark, smooth 2½-inch heads; inclined to lodge. |
| 127..... | 90 | 48 | Soft dough; dark, smooth 1½-inch heads; lodged badly. |
| 128..... | 85 | 49 | Dough stage; dark, smooth 2¾-inch heads; lodged badly. |
| 129..... | 90 | 49 | Soft dough; dark, smooth 3-inch heads; lodged badly. |

Table 4 gives a record of variety tests with barley and oats.

TABLE 4.—*Results of variety tests with barley and with oats at Matanuska station, 1926*

| Variety | Date seeded | Date ripe | Length of time required to mature from seeding | Yield of straw per acre | Yield of grain per acre |
|---------------------------|-------------|-----------|--|-------------------------|-------------------------|
| | | | Days | Pounds | Bushels |
| Barley: | | | | | |
| Hybrid No. 19b..... | May 15 | Aug. 25 | 102 | 2,933 | 34.00 |
| Hybrid No. 19..... | do | do | 102 | 2,117 | 29.90 |
| Hybrid No. 14a..... | do | Aug. 22 | 99 | 1,098 | 16.60 |
| Hybrid No. 28a..... | do | Aug. 25 | 102 | 1,834 | 24.15 |
| Hybrid No. 28..... | do | do | 102 | 1,439 | 20.30 |
| Hybrid No. 20b..... | do | do | 102 | 1,377 | 18.40 |
| Old's Montana..... | May 18 | do | 99 | 1,733 | 21.10 |
| Hybrid No. 44..... | do | do | 99 | 1,630 | 26.00 |
| Hybrid No. 19 (dark)..... | do | Aug. 28 | 102 | 2,632 | 24.30 |
| Oats: | | | | | |
| Golden Rain..... | May 13 | Aug. 22 | 101 | 2,127 | 72.80 |
| Hybrid No. 51..... | do | Aug. 25 | 104 | 2,869 | 67.10 |
| Leader..... | do | Aug. 26 | 105 | 2,592 | 95.60 |
| Hybrid No. 36a..... | do | Aug. 28 | 107 | 2,734 | 87.40 |
| Heavyweight..... | do | Aug. 22 | 101 | 2,270 | 78.00 |
| Twentieth Century..... | do | do | 101 | 2,349 | 76.80 |

ROTATION PLATS

In 1925 a series of rotation experiments was begun on 40 one-tenth-acre plats. The corners of the plats were permanently marked with iron stakes and each plat was numbered. The plan calls for a five-year rotation including wheat, peas, barley, oats and vetch, and potatoes or roots, in the order named. Roots are then to follow wheat in plat No. 1. Each crop is to be moved one step along in the same order during the third, fourth, and fifth year. In the sixth year all plats are again to be cropped in the order followed the first year. The plats are replicated six times so that an average can be obtained each year. In addition, two series of five plats each are permanently cropped with wheat, peas, barley, oats and vetch, and roots without rotation.

These two series are separated as far from the other plats as space permits, and are to serve as checks permitting comparison of yields from rotated and nonrotated areas. For example, a higher average yield of wheat from the five-year rotation plats than from the two plats permanently in wheat will show the superiority of rotation over nonrotation. The yield of each plat is being recorded each year so that data may be available for comparison at the end of the experiment. The experiment has not progressed sufficiently far as yet to permit drawing conclusions.

POTATOES

On May 14 and May 15, 17 varieties of potatoes were planted on areas varying from one-fourth to one-sixteenth acre to obtain data on yields, earliness, and quality. (Fig. 6.) The potatoes were dropped by hand 18 inches apart in rows 4 feet apart in furrows that had been opened with a cultivator. Growth was slow until the rains came in early July. White Bliss was considered as the standard variety. Three areas of the variety were planted so as to make the results as nearly uniform as possible. Table 5 gives the results of the test.

TABLE 5.—Results of variety test with potatoes, Matanuska station, 1926

| Variety | Date of bloom | Estimated yield per acre | Remarks |
|---------------------------|---------------|--------------------------|--|
| | | <i>Bushels</i> | |
| Rural New Yorker..... | June 28 | 186.0 | Vine growth, medium; cooking quality, good. |
| Early Ohio..... | July 1 | 154.0 | Vine growth, light; cooking quality, very good. |
| Green Mountain..... | June 27 | 190.8 | Vine growth, medium; cooking quality, good. |
| Early Market..... | July 1 | 170.3 | Vine growth, light; cooking quality, very good. |
| Earliest-of-All..... | do | 234.9 | Vine growth, medium; cooking quality, fair. |
| Alida (No. 368)..... | do | 222.5 | Vine growth, medium; cooking quality, good. |
| Producer..... | July 5 | 253.1 | Vine growth, heavy; cooking quality, fair. |
| Elsie..... | July 6 | 230.1 | Vine growth, medium; cooking quality, good. |
| Matanuska..... | July 5 | 218.0 | Vine growth, light; cooking quality, good. |
| Carter's..... | do | 149.8 | Vine growth, medium; cooking quality, very good. |
| Irene (No. 964)..... | June 29 | 207.2 | Vine growth, medium; cooking quality, good. |
| Imogene (No. 961)..... | July 1 | 213.9 | Do. |
| Beatrice (No. 406)..... | do | 171.7 | Do. |
| Jeannette (No. 1009)..... | July 5 | 191.4 | Do. |
| Winter's Early Idaho..... | July 8 | 153.0 | Vine growth, medium; cooking quality, very good. |
| White Bliss (check)..... | June 26 | 234.6 | Vine growth, medium; cooking quality, good. |
| Do..... | do | 218.0 | Do. |
| Do..... | do | 213.3 | Do. |

The table shows that several of the seedling varieties of Sitka origin exceeded the average in yield. The crop was cultivated and

hilled up as is the general practice in potato growing and weeds were pulled as fast as they appeared. Most of the varieties were free from disease, but some were attacked by *Rhizoctonia*. Diseased plants were sorted, dug, and destroyed as they appeared during the summer and great care was taken to prevent healthy tubers from coming in contact with diseased tubers. Early Market, Early Ohio, and Winter's Early Idaho seemed to be more susceptible to disease than other varieties. Early Market was 10 per cent affected, Early Ohio 6 per cent, and Winter's Early Idaho 28 per cent. Susceptible varieties were scrutinized with care in the selection of seed. Hill selection was practiced to provide seed for future planting. The average yield, 201.7 bushels per acre, is rather low and in future the better-yielding varieties should be planted. Yields of all varieties of potatoes seem to vary with the season and the soil. It is only partly true that heavy yielders may be depended upon to continue to yield



FIG. 6.—Potatoes, Matanuska station. Center, Producer variety

heavily when they are given a change of environment and soil. Potato tests must therefore continue for the selection of varieties producing the best grade of tubers.

SUGAR BEETS

In compliance with an agreement made with the manager of the Alaska Railroad Co., a 1-acre plat was planted with sugar beets to learn whether they could be grown for sugar in Alaska. (Fig. 7.) The seed and fertilizing material were supplied by the company. The ground was treated with fertilizer of the same kinds and proportions as was done at Fairbanks in a similar experiment, and on May 19 the seed was planted in rows 20 inches apart running north and south. The ground was then well firmed and was in splendid condition to insure germination. The young plants were blocked and thinned to 8 inches apart in the rows from June 28 to July 1. This work was expensive since it required much hand labor. The dry weather of May and June caused the plants to wilt, but a good

rain in July revived them. On October 8 and 9 the beets were harvested. The net weight of the clean roots was 19,580 pounds, or nearly 10 tons. Of this amount, 6,150 pounds was furnished to the company for determination of sugar content. The following is the report which was received from the Utah-Idaho Sugar Co.:

We ran sufficient beets from the districts through our laboratory process to determine that the roots for practical sugar-making purposes would be satisfactory, although the analysis showed a higher sugar content than would have existed at the time the roots were taken from the soil because of the evaporation which had taken place. You understand, sugar beets contain a heavy percentage of water, and while this was being evaporated, the sugar content would remain constant and a root which had dried out would show a higher percentage of sugar than when originally taken from the soil. The most discouraging feature about the experiment is the size of the roots. Some individual roots from the Matanuska district were more normal beets, but the average was far below normal. The Fairbanks beets were very light indeed. In order to make sugar-beet growing possible or successful the farmer must be able to make a profit. This would



FIG. 7.—Sugar beets growing at the Matanuska station

be impossible with beets weighing as little as these which were sent from Alaska. The average weight of roots grown where beet growing is successfully carried on, runs from 2 to 4 pounds. A 1-pound beet is considered very small.

The analysis and average weight of the beets, as determined by the Utah-Idaho Sugar Co., are shown in Table 6.

TABLE 6.—*Analysis and average weight of sugar beets grown in Alaska, 1926*

| District | Average weight | Brix reading | Sugar in juice | Sugar in beet | Purity |
|----------------------------|----------------|----------------|-----------------|-----------------|-----------------|
| | <i>Ounces</i> | <i>Degrees</i> | <i>Per cent</i> | <i>Per cent</i> | <i>Per cent</i> |
| Matanuska..... | 12 | 21.4 | 19.5 | 17.9 | 90.8 |
| Do..... | 13 | 21.3 | 19.2 | 17.7 | 90.1 |
| Fairbanks..... | 7 | 21.7 | 18.9 | 17.4 | 86.8 |
| Do..... | 7 | 21.6 | 17.9 | 16.5 | 81.2 |
| Anchorage (peat soil)..... | 11 | 20.8 | 17.7 | 16.3 | 85.1 |
| Do..... | 12 | 20.1 | 17.5 | 16.1 | 87.2 |

The yield of nearly 10 tons from the acre plat is the minimum acceptable for profitable production in beet-growing districts. The beets made a better yield than they did at Fairbanks, probably because at Matanuska the crop was grown on swale land, root development was aided by liberal rainfalls, and harvesting did not begin until October 8. At Fairbanks, on the other hand, the crop was grown on a gently sloping hillside having a southern exposure, the rainfall was inadequate for root development, and the beets were harvested September 18, three weeks earlier than at Matanuska, because of a threatened freeze.

It is hardly likely that sugar-beet growing in Alaska can be made an unqualified success until there is developed a class of beets which will mature in a shorter season than do the varieties now available. Possibly, breeding experiments may develop beets of more rapid growth and earlier maturity. Sugar beets require an average tem-



FIG. 8.—Artichokes growing at the Matanuska station

perature of 70° F. during the growing season, and such a temperature can not be had in Alaska during May and June, or from the middle of August to the close of the growing season. As an outcome of the experiments at the two stations, plant breeders may be interested in endeavoring to develop varieties of sugar beets, which are better adapted to Alaskan conditions than are the varieties now grown.

MISCELLANEOUS ROOT CROPS

Artichokes.—White Jerusalem artichokes were seeded May 5 on a 1-acre plat. (Fig. 8.) The stand was nearly perfect and the plants grew well. The tops attained a height of 6½ feet. Half of the crop was cut for silage. The yield was at the rate of 14.67 tons per acre. The other half of the crop was cured for forage, the tops being cut by hand and shocked like corn. The air-dried crop was at the rate of 3.8 tons per acre. Both sheep and horses relish artichoke forage and will leave oat hay for it.

A tenth-acre plat of artichokes planted in 1925 survived the winter with a protection of only a light covering of coarse manure. The tonnage of the tops indicated a yield of 16.8 tons per acre. The stalks grew vigorously and attained a height of 7 feet by August 10, when they were cut for silage.

Mangels.—The variety Heavy Cropper was planted May 19 on an acre plat. The crop grew vigorously and produced fair-sized roots which were smooth and stood well above the ground surface so that the mangels could easily be pulled by hand. The crop was harvested October 5 and 6 and yielded at the rate of 22.84 tons. Root crops are expensive to grow because they require much hand labor. Otherwise they might well be important as a source of feed for livestock in Alaska.

Rutabagas.—Rutabagas which were grown on a 1-acre plat yielded 13.32 tons. The dry weather in early summer somewhat stunted growth.

Turnips.—Petrowski turnips which were grown on 1½ acres of newly broken land yielded 14 tons.

Carrots.—Danvers Half Long was planted on a tenth-acre plat but made stunted growth until the rains increased. Carrots are especially good for horses.

VETCH

The common vetch (*Vicia sativa*) was used extensively as a mixture with oats and barley when intended for silage. Four and a half acres of land were seeded April 16. The crop was left to mature and the plat yielded 4.1 tons of cured hay consisting of equal parts of oats and vetch. A total of 24 tons of oats and vetch hay was grown, and approximately 38 tons of the green oats and vetch crop was placed in the silo.

The perennial vetch (*Vicia cracca*) which was first tried out at Rampart promises to be of value for the Matanuska Valley. A small patch seeded in 1924 produced a fairly heavy crop. A tenth-acre plat was seeded to this vetch with winter rye as a nurse crop on June 21, 1926, for fall pasture. Sheep relish perennial vetch, but cattle do not appear to care for it. Perennial vetch is hardy and apparently is worthy of a place in the interior valleys. The vetch was perpetuated at the Rampart station for many years, and growth was found to improve when the soil surface was stirred to a depth of some 4 or 5 inches so as to tear the rootstocks partly. Further experiments are needed to determine the value of perennial vetch.

LIVESTOCK

CATTLE

The Matanuska Valley is preeminently adapted to dairying. Special emphasis has therefore been placed upon dairy-stock breeding at the Matanuska station. The three breeds now at the station are the Holstein-Friesians, the Milking Shorthorns, and the Galloway-Holstein crossbreds. As yet no actual dairy work has been done. The station has no dairy building or dairy equipment, and the cattle at present are being raised chiefly to determine their adaptation to climatic conditions and also to encourage farmers in the valley to carry on dairying on a small scale. It is reasonable to suppose that a dairy industry will be developed in time at Matanuska. The farmers

preparatory to engaging in such an industry must familiarize themselves with the advantages afforded by dairy farms and learn something of the qualities of cattle that are best adapted to the region.

On January 1, 1927, the Galloway-Holstein crossbred herd included 12 cows, 11 heifers, and 2 bulls; the Holstein-Friesian herd, 6 cows, 2 heifers, and 3 bulls; and the Milking Shorthorn herd, 9 cows, 2 heifers, and 3 bulls. In addition there are 2 steers and a calf which were intended for slaughter. During the year 17 head of cattle, mostly bulls and bull calves that had been castrated, were sold for beef. Only such young males as are suitable for breeding are retained. The others are sold for beef whenever the market becomes available. One cow which hid in the woods to calve was found dead. During the year the Shorthorn herd dropped 6 calves, consisting of 4 bulls and 2 heifers; the Holstein-Friesians dropped 4 calves, consisting of 3 bulls and 1 heifer; and the crossbreds dropped 17 calves, consisting of 11 bulls and 6 heifers.

The cows were fed a maintenance ration. All the feed was produced at the station. During the summer they were fed chiefly at pasture, and when soiling crops became available all cows in milk were fed green fodder once daily. In the fall the ration was supplemented with mangels and other roots. During the winter the cattle were fed silage and hay. What concentrated feed they consumed was grown at the station. Barley and oats were ground and fed after the seed grain had been selected. Milk records were kept of every cow in the herd. The milk was weighed as soon as it was drawn and the daily records when totaled showed the monthly and yearly performance of each cow. The milk was fed to the calves, which grew vigorously as a result. No attempt was made to make butter or cheese. This is the first year that the three breeds have been kept under identical conditions, and it is too early yet to draw general conclusions as to the merits of each breed. Each cow was given credit for the milk she produced day by day during the year. The 12 months cover a lactation period, but in many instances the record of the first few months covers a closing lactation period, and the record of the last 8 or 10 months a new lactation period. The following data show the performance of each group of cows for the period January 1 to December 31, 1926:

The Shorthorn herd of 7 cows gave milk during a total of 68 months and yielded a total of 32,542 pounds of milk. The average yield of milk per cow for the herd per month was 478 pounds, and the average yield of butterfat was 3.81 per cent.

In the Holstein herd 4 cows gave milk during a total of 32 months. The total yield of the 4 cows was 17,046 pounds, which is an average per cow per month of 533 pounds. The average butterfat yield was 3.53 per cent.

In the Galloway-Holstein crossbred herd, 13 cows gave milk for a total of 102 months. These 13 cows yielded a total of 52,197 pounds, which gives an average per cow per month for the herd of 511 pounds. The average yield of butterfat was 3.88 per cent.

Six of the 13 crossbred cows were heifers with their first calves and therefore had by no means attained normal production such as would be made by cows in their prime. The Holsteins gave the highest yield of milk per cow, but were lowest in percentage of butterfat. The crossbreds ranked next in yield of milk per cow and highest in

yield of butterfat. The Shorthorns gave the lowest quantity of milk per cow and were intermediate between the crossbreds and the Holsteins in percentage of butterfat. These data indicate at least a favorable comparison of the crossbreds with the two purebred herds of Shorthorns and Holsteins. The crossbreds have in addition other qualities entitling them to consideration as foundation stock for the establishment of a dairy breed in Alaska. They are better rustlers than either the Shorthorns or the Holsteins and also maintain their weight better during the trying period of spring when they are turned out to graze and pasture is scant. The crossbreds are polled like the Galloways and can therefore be handled with greater ease in the herd than can the horned breeds. The crossbreds when first turned out with the Shorthorns and the Holsteins suffered so much from the horned breeds that it became necessary to dehorn the Shorthorns.

The facts here given are not to be taken as conclusive for any of the three breeds, but the test promises to become of greater interest as the years pass, and the results so far confirm the hope that in time, when the characteristics of the crossbreds have become fixed, there can be developed a breed which shall be more at home under Alaskan conditions than are the breeds which are introduced from the more southerly latitudes.

SHEEP

The station flock of sheep consists of seven ewes, one ewe lamb, one 2-year-old wether, and one 1-year-old wether. The flock is headed by a Cotswold ram. One ewe was killed in the spring of 1925 by bears. Only three lambs consisting of one ewe and two bucks, were dropped during the year, and the bucks were killed in pasture by wolves. Sheep raising at Matanuska probably can be made a profitable industry once the dogs, bears, and wolves are brought under control.

HORTICULTURE

The cultivation and propagation of fruit trees, fruit bushes, and ornamentals was continued and the area devoted to them extended. Similar work on a larger scale is in progress at Sitka, but many plants which are shipped from Sitka to distant points die before reaching their destination. Matanuska has therefore been made a distributing center for nursery stock and such varieties as do well are recommended for trial to settlers. Nursery stock, consisting chiefly of young apple trees, fruit bushes, strawberry plants, and some hundreds of ornamentals in about a dozen varieties, which was shipped from Sitka to Matanuska did well, as did also stock that was introduced at Matanuska some years ago. No apples have as yet matured, the trees being small, but red, white, and black varieties of currants were heavy producers. The red-currant varieties deserving special mention were North Star and Perfection. Raspberries seem to be perfectly at home at Matanuska. Several varieties have been tried, including the Ranere (*St. Regis*) and the Sunbeam. These varieties, however, do not compare with the Cuthbert, which seems to be the standard variety for Alaska and bears abundantly every year.

Tall canes of the Cuthbert raspberry sometimes are injured by freezing and should be bent to one side in the fall and weighted down with poles. Currant bushes need no winter protection, but goose-

berry bushes sometimes suffer from extreme cold. They should be covered with straw before the snow comes. The straw will settle to the ground by spring and should then be dug under. Many hundred currant and gooseberry cuttings were made and preserved in the root cellar for planting in nursery rows next spring. Currant cuttings as a rule take root readily. Gooseberry cuttings, on the other hand, are difficult to root. Only 25 to 40 per cent of the gooseberry cuttings can be expected to root.

The Sitka hybrid strawberries have fully demonstrated their value for Matanuska, and strawberries are now produced in excess of the local demand. Shipments are made to Fairbanks and other points at the north end of the railroad and also to the southern settlements toward Seward. Two varieties showing outstanding merit during the season of 1926 were Nos. 2242 and 1705, which yielded in abundance berries of high quality. Other desirable numbers were 1949, 3210, 830, and 420. Probably the most successful hybrid straw-



FIG. 9.—Strawberries and fruit bushes at the Matanuska station

berries are those which were produced by pollinating the variety Hollis with the native berry (*Fragaria chiloensis*) of the coast region. (Fig. 9.) Crosses between hybrids and varieties in common cultivation in the States do not seem to be so hardy, and therefore are less suited to interior conditions. Berries which were grown on north-slope land matured some two or three weeks later than did those on a southern exposure. This fact may be of interest to those desiring to extend the strawberry season. Under normal conditions strawberries do not need winter protection other than that afforded by the snow. Plants which are grown in an exposed place where the wind blows the snow from the ground or causes the surface soil to drift should be covered with a layer of coarse manure, mostly straw, and weighted down with poles.

IMPROVEMENTS

An aggregate of 5 acres of land was cleared and made ready for the plow. Four hundred rods of new fence was built and 100 rods of old fence repaired. A new silo, 14 by 36 feet with a 10-foot concrete

base, was erected, and a cement foundation, 20 by 40 feet with 6-foot walls, was built for a manure pit. Hanging tracks were built from the barn to the manure pit, and the track in the barn was extended to the root cellar. The foundation was laid for a milk house 16 by 16 feet near the barn. The water pipe was laid from the pump house to the assistant's cottage and a drain pipe from the log cabin to the outlet. Work was begun on two rooms in the garret of the assistant's cottage to provide sleeping quarters for laborers. A gravel bed was opened in a hill near the station to be used in concrete work. The silos and cottages were painted and miscellaneous general repair work was done.

KODIAK STATION

The season was unusually rainy at Kodiak. During the calendar year the precipitation amounted to 77.8 inches. The average for 18 years is 61.3 inches. The coldest day was 3° F. and the warmest day was 81°. The growing months from May to September, inclusive, had 19 clear days, 10 of which were in June.

CHANGE IN PERSONNEL

W. T. White, who has been in charge of the station for several years, was transferred to Matanuska because of the transfer of most of the herd to that station. E. M. Floyd, who was formerly in charge of Rampart, and for a few months at Fairbanks at the beginning of the year, was placed in charge of the Kodiak station in March.

LIVESTOCK

The livestock at Kodiak consist wholly of a small herd of Galloway cattle, which are maintained for the purpose of furnishing breeding stock for experimental work. On January 1 the herd included 6 cows, 1 herd bull, 2 yearling heifers, and 5 calves. The Galloway breed has proved itself eminently adapted to climatic conditions at Kodiak. The station also has a team of two work horses.

CROP WORK

Approximately 30 acres are under cultivation and some 3 acres additional are rented for the production of crops for haymaking. Oats, seeded at the rate of 100 pounds, and peas, 25 pounds per acre, were raised for silage and hay. This mixture produces good feed. Because of rain during the haying season most of the crop was made into silage. Fifteen tons of hay and 40 tons of silage was put up by the station.

ARTICHOKES

Repeated efforts have been made to grow the White Jerusalem artichoke at Kodiak. The crop does exceedingly well at Sitka and apparently should thrive at Kodiak. However, it does not, because the tubers rot in the ground. The soil at Kodiak is too poor for artichokes.

FENCING

One hundred rods of new fence was constructed. Four hundred posts were cut and set, part of them for the new fence and the others to repair old fences. About 200 rods of fence is needed to protect the station from roving animals.

WEATHER REPORTS

Condensed meteorological reports

ALLAKAKET. Latitude $66^{\circ} 34'$, longitude $152^{\circ} 44'$. Florence Huband, observer

| Month | Temperature | | | | | Total precipitation | Number of days— | | | |
|-----------|--------------|--------------|-------------------|-------------------|-------------------|---------------------|-----------------|-------|------------------|--------|
| | Maxi- mum | Mini- mum | Mean maxi- mum | Mean mini- mum | Month- ly mean | | Rain or snow | Clear | Partly cloudy | Cloudy |
| | °F. | °F. | °F. | °F. | °F. | Inches | | | | |
| January | 24 | -44 | 12.2 | -7.0 | 2.6 | 1.60 | 12 | 6 | 3 | 22 |
| February | 19 | -55 | -3.8 | -29.6 | -16.7 | 1.12 | 3 | 13 | 3 | 7 |
| March | 45 | -45 | 24.7 | -3.8 | 10.4 | .60 | 8 | 14 | 4 | 13 |
| April | 52 | -11 | 38.2 | 13.5 | 25.8 | .48 | 5 | 17 | 7 | 6 |
| May | 69 | 22 | 53.5 | 31.3 | 42.4 | 1.31 | 7 | 12 | 5 | 14 |
| June | 85 | 32 | 73.4 | 43.3 | 58.4 | .70 | 6 | 16 | 8 | 6 |
| July | 84 | 35 | 72.7 | 46.1 | 59.4 | 2.01 | 11 | 13 | 5 | 12 |
| August | | | | | | | | | | |
| September | 63 | 22 | 53.3 | 34.1 | 43.7 | 1.94 | 10 | 6 | 2 | 16 |
| October | 47 | -5 | 32.8 | 18.0 | 25.4 | 1.89 | 11 | 7 | 7 | 17 |
| November | 31 | -41 | 9.4 | -4.6 | 2.4 | .45 | 7 | 15 | 2 | 13 |
| December | 23 | -56 | -13.8 | -33.2 | -23.5 | .77 | 6 | 15 | 1 | 15 |

ANCHORAGE. Latitude $61^{\circ} 13'$, longitude $149^{\circ} 52'$. Alaska Railroad, observer

| | | | | | | | | | | |
|-----------|----|-----|------|------|------|------|----|----|----|----|
| January | | | | 22.8 | | 0.89 | 5 | 4 | 14 | 13 |
| February | 46 | —11 | 34.5 | 9.6 | 22.0 | .15 | 2 | 7 | 11 | 7 |
| March | 56 | 11 | 45.7 | 28.3 | 37.0 | .77 | 4 | 5 | 6 | 20 |
| April | 58 | 19 | 49.9 | 31.1 | 40.5 | .16 | 1 | 11 | 10 | 9 |
| May | 71 | 26 | 59.8 | 38.0 | 48.9 | .05 | 1 | 11 | 7 | 12 |
| June | 82 | 37 | 67.8 | 48.6 | 58.6 | .03 | 1 | 13 | 9 | 8 |
| July | 74 | 47 | 65.9 | 52.2 | 59.0 | 1.26 | 8 | 12 | 3 | 9 |
| August | 74 | 40 | 64.8 | 49.2 | 57.0 | 2.51 | 18 | 5 | 8 | 18 |
| September | 65 | 32 | 59.1 | 43.8 | 51.4 | 2.38 | 11 | 4 | 17 | 14 |
| October | 56 | 18 | 47.3 | 32.2 | 39.8 | 1.89 | 9 | 10 | 3 | 18 |
| November | 51 | —3 | 33.8 | 23.9 | 28.8 | 1.49 | 6 | 12 | 5 | 13 |
| December | 47 | —9 | 21.3 | 8.9 | 15.1 | 1.23 | 8 | 3 | 5 | 23 |

ANNEX CREEK. Latitude $58^{\circ} 18'$, longitude $134^{\circ} 07'$. Alaska-Gastineau Mining Co., observer

| | | | | | | | | | | |
|----------------|----|----|------|------|------|-------|----|----|----|----|
| January..... | 49 | 16 | 39.1 | 30.2 | 34.6 | 16.28 | 27 | 4 | 0 | 27 |
| February..... | 44 | 15 | 35.6 | 26.8 | 31.2 | 8.20 | 21 | 4 | 6 | 18 |
| March..... | 55 | 28 | 43.4 | 32.6 | 38.0 | 8.88 | 28 | 5 | 3 | 23 |
| April..... | 57 | 29 | 49.4 | 36.3 | 42.8 | 9.99 | 23 | 9 | 7 | 14 |
| May..... | 68 | 35 | 58.3 | 39.4 | 48.8 | 2.86 | 19 | 14 | 10 | 7 |
| June..... | 80 | 39 | 66.3 | 45.7 | 56.0 | 2.44 | 9 | 19 | 4 | 12 |
| July..... | 72 | 42 | 64.7 | 46.9 | 55.8 | 3.51 | 20 | 11 | 8 | 7 |
| August..... | 79 | 28 | 63.5 | 42.2 | 52.8 | 4.31 | 13 | 14 | 7 | 10 |
| September..... | 69 | 28 | 58.8 | 38.7 | 48.8 | 4.14 | 9 | 18 | 3 | 9 |
| October..... | 60 | 23 | 50.3 | 35.4 | 42.8 | 19.85 | 21 | 8 | 4 | 19 |
| November..... | 50 | 10 | 38.9 | 26.1 | 32.5 | 5.61 | 14 | 14 | 1 | 15 |
| December..... | 45 | 0 | 31.1 | 20.4 | 25.8 | 16.04 | 24 | 3 | 1 | 27 |

BARROW. Latitude $71^{\circ} 30'$, longitude $156^{\circ} 17'$. Weather Bureau, observer

[illegible]

Condensed meteorological reports—Continued

BETHEL. Latitude 60° 45', longitude 161° 47'. Weather Bureau, observer

| Month | Temperature | | | | | Total precip- itation | Number of days— | | | |
|----------------|--------------|--------------|----------------------|----------------------|----------------------|-----------------------------|-----------------|-------|------------------|--------|
| | Maxi- mum | Mini- mum | Mean maxi- mum | Mean mini- mum | Month- ly mean | | Rain or snow | Clear | Partly cloudy | Cloudy |
| | ° F. | ° F. | ° F. | ° F. | ° F. | Inches | | | | |
| January..... | 39 | -21 | 25.5 | 6.2 | 15.8 | 0.14 | 8 | 12 | 5 | 14 |
| February..... | 33 | -33 | 14.9 | -5.4 | 4.8 | T. | 0 | 16 | 10 | 2 |
| March..... | 51 | -7 | 35.7 | 17.3 | 26.5 | .27 | 9 | 7 | 16 | 8 |
| April..... | 56 | 14 | 47.1 | 26.3 | 36.7 | .74 | 9 | 13 | 12 | 5 |
| May..... | 66 | 21 | 53.0 | 30.6 | 41.8 | 1.16 | 10 | 15 | 9 | 7 |
| June..... | 90 | 32 | 70.0 | 44.5 | 57.2 | .54 | 4 | 23 | 4 | 3 |
| July..... | | | | | | | | | | |
| August..... | | | | | | | | | | |
| September..... | | | | | | | | | | |
| October..... | | | | | | | | | | |
| November..... | | | | | | | | | | |
| December..... | | | | | | | | | | |

CALDER. Latitude 56° 10', longitude 133° 27'. Harvey Sellers, observer

| | | | | | | | | | | |
|----------------|----|----|------|------|------|-------|----|----|---|----|
| January..... | | | | | | | | | | |
| February..... | | | | | | | | | | |
| March..... | | | | | | | | | | |
| April..... | | | | | | | | | | |
| May..... | | | | | | | | | | |
| June..... | | | | | | | | | | |
| July..... | 70 | 42 | 61.1 | 49.6 | 55.4 | | | 1 | 4 | 11 |
| August..... | 70 | 43 | 63.3 | 49.2 | 56.2 | 3.49 | 9 | 15 | 3 | 13 |
| September..... | 69 | 26 | 61.1 | 39.8 | 50.4 | 3.59 | 8 | 22 | 1 | 7 |
| October..... | 60 | 28 | 52.5 | 41.3 | 46.9 | 18.55 | 22 | 10 | 1 | 20 |
| November..... | 53 | 21 | 43.7 | 35.1 | 39.4 | 7.35 | 16 | 8 | 2 | 20 |
| December..... | 49 | 16 | 39.7 | 31.7 | 35.7 | 19.37 | 25 | 4 | 0 | 27 |

CANDLE. Latitude 65° 55', longitude 161° 57'. F. M. Warsing, observer

| | | | | | | | | | | |
|----------------|----|-----|------|-------|-------|--|--|----|---|---|
| January..... | 30 | -37 | 7.2 | -11.6 | -2.2 | | | 28 | 1 | 2 |
| February..... | 25 | -44 | -7.9 | -24.0 | -16.0 | | | 28 | 0 | 0 |
| March..... | | | | | | | | | | |
| April..... | | | | | | | | | | |
| May..... | 47 | 4 | 34.5 | 17.4 | 26.0 | | | 26 | 3 | 2 |
| June..... | 78 | 22 | 61.3 | 35.4 | 48.4 | | | 27 | 2 | 1 |
| July..... | 75 | 32 | 63.0 | 39.6 | 51.3 | | | | | |
| August..... | 83 | 22 | 61.9 | 39.0 | 50.4 | | | 21 | 4 | 5 |
| September..... | 65 | 20 | 52.9 | 36.0 | 44.4 | | | 17 | 3 | 6 |
| October..... | 48 | -8 | 33.7 | 16.7 | 25.2 | | | 23 | 3 | 5 |
| November..... | 41 | -13 | 23.6 | 9.8 | 16.7 | | | 25 | 1 | 4 |
| December..... | | | | | | | | | | |

CHICKALOON. Latitude 61° 48', longitude 148° 27'. Archie Lingo, observer

| | | | | | | | | | | |
|----------------|----|-----|------|------|------|------|----|----|----|----|
| January..... | 38 | 1 | 28.8 | 13.0 | 20.9 | 0.28 | 2 | 9 | 12 | 10 |
| February..... | 36 | -18 | 23.0 | 2.0 | 12.5 | .17 | 2 | 13 | 9 | 6 |
| March..... | | | | | | | | | | |
| April..... | 57 | 15 | 50.4 | 25.8 | 38.1 | .28 | 3 | 11 | 16 | 3 |
| May..... | 69 | 21 | 61.5 | 33.4 | 47.4 | .41 | 4 | 7 | 18 | 6 |
| June..... | 86 | 32 | 71.4 | 45.0 | 58.2 | .95 | 7 | 9 | 16 | 5 |
| July..... | 85 | 43 | 68.9 | 47.7 | 58.3 | 3.79 | 18 | 6 | 16 | 9 |
| August..... | 83 | 31 | 67.3 | 44.8 | 56.0 | 1.92 | 14 | 11 | 9 | 11 |
| September..... | 69 | 26 | 61.7 | 39.1 | 50.4 | 2.27 | 6 | 5 | 20 | 15 |
| October..... | 64 | 16 | 47.6 | 30.3 | 39.0 | .59 | 4 | 9 | 10 | 12 |
| November..... | 50 | 1 | 33.6 | 21.5 | 27.6 | .44 | 2 | 16 | 8 | 6 |
| December..... | 33 | -18 | 25.6 | 20.1 | 12.8 | .80 | 3 | 10 | 7 | 14 |

Condensed meteorological reports—Continued

CORDOVA. Latitude 60° 32', longitude 145° 42'. Weather Bureau, observer

| Month | Temperature | | | | | Total precipitation | Number of days— | | | |
|----------------|-------------|---------|--------------|--------------|--------------|---------------------|-----------------|-------|---------------|--------|
| | Maximum | Minimum | Mean maximum | Mean minimum | Monthly mean | | Rain or snow | Clear | Partly cloudy | Cloudy |
| | °F. | °F. | °F. | °F. | °F. | Inches | | | | |
| January..... | 49 | 30 | 41.9 | 34.7 | 38.3 | 19.69 | 29 | 1 | 1 | 29 |
| February..... | 44 | 4 | 36.6 | 24.6 | 30.6 | 8.39 | 19 | 8 | 4 | 16 |
| March..... | 48 | 30 | 42.8 | 35.1 | 39.0 | 31.49 | 28 | 1 | 3 | 27 |
| April..... | 56 | 26 | 47.6 | 35.7 | 41.6 | 16.23 | 19 | 7 | 9 | 14 |
| May..... | 64 | 34 | 53.9 | 40.6 | 47.2 | 8.50 | 20 | 8 | 4 | 19 |
| June..... | 80 | 42 | 64.8 | 49.4 | 57.1 | 1.45 | 8 | 13 | 4 | 13 |
| July..... | 70 | 44 | 61.6 | 51.0 | 56.3 | 9.63 | 19 | 5 | 5 | 21 |
| August..... | 70 | 42 | 61.6 | 51.8 | 56.7 | 12.70 | 11 | 5 | 9 | 17 |
| September..... | 68 | 38 | 59.1 | 46.1 | 52.6 | 5.67 | 8 | 11 | 6 | 13 |
| October..... | 51 | 15 | 50.7 | 39.5 | 45.1 | 31.84 | 21 | 9 | 2 | 20 |
| November..... | 51 | 15 | 40.9 | 32.6 | 36.9 | 9.45 | 12 | 12 | 3 | 15 |
| December..... | 46 | 15 | 36.3 | 27.3 | 32.0 | 14.42 | 20 | 4 | 5 | 22 |

DILLINGHAM. Latitude 59° 00', longitude 153° 28'. W. N. Reed, observer

| | | | | | | | | | | |
|----------------|----|-----|------|------|------|------|----|----|---|----|
| January..... | 39 | -2 | 32.9 | 23.5 | 28.2 | 0.87 | 7 | 2 | 1 | 23 |
| February..... | 37 | -21 | 23.9 | 10.2 | 17.6 | .41 | 7 | 12 | 0 | 16 |
| March..... | 45 | 3 | 37.1 | 24.3 | 30.7 | 2.06 | 4 | 5 | 2 | 24 |
| April..... | 53 | 25 | 47.3 | 31.2 | 39.2 | .46 | 1 | 9 | 6 | 15 |
| May..... | 65 | 25 | 55.1 | 34.8 | 45.0 | .48 | 1 | 15 | 5 | 11 |
| June..... | 89 | 38 | 71.2 | 50.2 | 60.7 | .71 | 3 | 21 | 1 | 8 |
| July..... | 79 | 42 | 68.1 | 49.6 | 58.8 | .41 | 2 | 11 | 7 | 13 |
| August..... | 72 | 39 | 64.3 | 49.6 | 57.0 | 3.79 | 9 | 8 | 1 | 22 |
| September..... | 68 | 38 | 59.5 | 47.3 | 53.4 | 4.17 | 13 | 4 | 2 | 24 |
| October..... | 60 | 18 | 46.0 | 31.7 | 38.8 | 2.24 | 6 | 15 | 1 | 15 |
| November..... | 50 | 2 | 37.0 | 28.0 | 32.5 | 2.59 | 7 | 9 | 5 | 16 |
| December..... | 40 | -14 | 18.5 | 7.9 | 13.2 | 1.20 | 5 | 10 | 0 | 20 |

DUTCH HARBOR. Latitude 53° 55', longitude 166° 30'. Naval Radio Service, observer

| | | | | | | | | | | |
|----------------|----|----|------|------|------|------|----|--|--|--|
| January..... | | 18 | | 29.3 | | 3.75 | 24 | | | |
| February..... | 42 | 19 | 34.8 | 26.1 | 30.4 | 4.72 | | | | |
| March..... | 48 | 22 | 39.8 | 30.6 | 35.2 | 5.20 | 24 | | | |
| April..... | 52 | 26 | 43.4 | 33.0 | 38.2 | 4.59 | 20 | | | |
| May..... | 57 | 30 | 47.5 | 35.0 | 41.2 | 5.50 | 19 | | | |
| June..... | 68 | 30 | 57.3 | 42.3 | 49.8 | 1.36 | 8 | | | |
| July..... | 71 | 42 | 60.3 | 47.9 | 54.1 | | | | | |
| August..... | 72 | 40 | 60.0 | 48.8 | 54.4 | 2.35 | 9 | | | |
| September..... | 67 | 29 | 60.6 | 43.0 | 51.8 | | | | | |
| October..... | | | | | | | | | | |
| November..... | | | | | | 9.79 | 25 | | | |
| December..... | | | | | | | | | | |

EAGLE. Latitude 64° 46', longitude 141° 12'. Weather Bureau, observer

| | | | | | | | | | | |
|----------------|----|-----|------|-------|------|------|----|----|---|----|
| January..... | 38 | -12 | 19.7 | 4.6 | 12.2 | 0.63 | 6 | 6 | 6 | 19 |
| February..... | 21 | -46 | 5.8 | -13.2 | -3.7 | .22 | 5 | 12 | 4 | 12 |
| March..... | 52 | -16 | 35.6 | 10.2 | 22.9 | .25 | 4 | 14 | 2 | 15 |
| April..... | 61 | -5 | 44.1 | 17.9 | 31.0 | .79 | 7 | 12 | 3 | 15 |
| May..... | 69 | 23 | 60.6 | 34.2 | 47.4 | 1.01 | 13 | 2 | 7 | 22 |
| June..... | 85 | 33 | 71.6 | 42.5 | 57.0 | 1.43 | 13 | 12 | 3 | 15 |
| July..... | 80 | 31 | 71.1 | 46.6 | 58.8 | 3.43 | 19 | 6 | 4 | 21 |
| August..... | 83 | 30 | 68.2 | 43.1 | 55.6 | 1.45 | 11 | 6 | 3 | 22 |
| September..... | 62 | 21 | 54.7 | 35.8 | 45.2 | 1.60 | 16 | 8 | 2 | 20 |
| October..... | 56 | 6 | 39.7 | 24.3 | 32.0 | .91 | 7 | 7 | 4 | 20 |
| November..... | 45 | -30 | 20.7 | 10.1 | 15.4 | .12 | 3 | 10 | 3 | 17 |
| December..... | 35 | -53 | -1.9 | -17.3 | -9.6 | .34 | 8 | 14 | 0 | 17 |

Condensed meteorological reports—Continued

FAIRBANKS. Latitude 64° 51', longitude 147° 52'. Weather Bureau, observer

| Month | Temperature | | | | | Total precipitation | Number of days— | | | |
|----------------|-------------|---------|--------------|--------------|--------------|---------------------|-----------------|-------|---------------|--------|
| | Maximum | Minimum | Mean maximum | Mean minimum | Monthly mean | | Rain or snow | Clear | Partly cloudy | Cloudy |
| | °F. | °F. | °F. | °F. | °F. | Inches | | | | |
| January..... | 36 | -12 | 20.0 | 5.1 | 12.6 | 0.24 | 6 | 6 | 16 | 9 |
| February..... | 22 | -36 | 7.9 | -12.7 | -2.4 | .16 | 3 | 16 | 6 | 6 |
| March..... | 53 | -10 | 39.1 | 14.5 | 26.8 | .23 | 6 | 8 | 16 | 7 |
| April..... | 63 | 11 | 48.2 | 25.4 | 36.8 | .56 | 6 | 14 | 7 | 9 |
| May..... | 71 | 28 | 63.5 | 35.7 | 49.6 | .94 | 13 | 5 | 10 | 16 |
| June..... | 87 | 35 | 74.9 | 47.5 | 61.2 | .58 | 10 | 10 | 6 | 14 |
| July..... | 84 | 38 | 73.9 | 49.7 | 61.8 | 2.43 | 15 | 8 | 8 | 15 |
| August..... | 89 | 33 | 69.7 | 44.3 | 57.0 | 1.19 | 9 | 9 | 5 | 17 |
| September..... | 69 | 25 | 56.9 | 37.7 | 47.3 | 2.54 | 14 | 8 | 7 | 15 |
| October..... | 57 | 1 | 41.1 | 23.4 | 32.2 | .23 | 5 | 10 | 6 | 15 |
| November..... | 48 | -22 | 21.6 | 6.8 | 14.2 | .15 | 2 | 16 | 4 | 10 |
| December..... | 38 | -43 | 1.0 | -17.0 | -8.0 | .36 | 7 | 13 | 6 | 12 |

FORTMAN HATCHERY. Latitude 55° 36', longitude 131° 25'. Fred Patching, observer

| | | | | | | | | | | |
|----------------|----|----|------|------|------|-------|----|----|----|----|
| January..... | 49 | 29 | 44.0 | 37.1 | 40.6 | 22.18 | 29 | 1 | 5 | 25 |
| February..... | 49 | 21 | 43.5 | 32.1 | 37.8 | 18.66 | 23 | 1 | 11 | 16 |
| March..... | 68 | 27 | 51.1 | 36.0 | 43.6 | 12.30 | 21 | 1 | 11 | 19 |
| April..... | 61 | 24 | 53.9 | 37.7 | 45.8 | 11.72 | 22 | 4 | 7 | 19 |
| May..... | 72 | 35 | 59.3 | 40.8 | 50.0 | 13.19 | 26 | 2 | 11 | 18 |
| June..... | 84 | 39 | 69.2 | 46.2 | 57.7 | 12.36 | 14 | 4 | 15 | 11 |
| July..... | 79 | 42 | 67.5 | 50.4 | 59.0 | 11.23 | 21 | 2 | 8 | 21 |
| August..... | 85 | 45 | 72.8 | 51.8 | 62.3 | 3.75 | 12 | 9 | 10 | 12 |
| September..... | 77 | 26 | 65.6 | 41.3 | 53.4 | 3.35 | 10 | 15 | 7 | 8 |
| October..... | 61 | 28 | 54.2 | 40.1 | 47.2 | 22.37 | 22 | 6 | 6 | 19 |
| November..... | 57 | 21 | 44.9 | 34.1 | 39.5 | 7.30 | 13 | 9 | 6 | 15 |
| December..... | 48 | 13 | 38.0 | 30.9 | 34.4 | 19.48 | 27 | 2 | 5 | 24 |

FORT YUKON. Latitude 66° 34', longitude 145° 18'. Weather Bureau, observer

| | | | | | | | | | | |
|----------------|----|-----|-------|-------|-------|------|----|----|---|----|
| January..... | 16 | -40 | 4.3 | -10.4 | -3.0 | 0.35 | 5 | 10 | 4 | 17 |
| February..... | 8 | -49 | -2.7 | -21.8 | -12.2 | .03 | 1 | 16 | 1 | 11 |
| March..... | 50 | -32 | 24.1 | .6 | 12.4 | .25 | 3 | 16 | 0 | 15 |
| April..... | 58 | -3 | 40.5 | 16.7 | 28.6 | .00 | 0 | 18 | 1 | 11 |
| May..... | 69 | 23 | 57.7 | 31.2 | 44.4 | .39 | 3 | 22 | 0 | 9 |
| June..... | 84 | 40 | 73.1 | 49.1 | 61.1 | .50 | 8 | 16 | 9 | 5 |
| July..... | 82 | 38 | 71.4 | 50.1 | 60.8 | 1.37 | 11 | 15 | 4 | 12 |
| August..... | 85 | 29 | 67.5 | 46.1 | 56.8 | .67 | 5 | 13 | 6 | 12 |
| September..... | 63 | 20 | 54.6 | 35.8 | 45.2 | .95 | 10 | 16 | 2 | 12 |
| October..... | 46 | 3 | 31.7 | 19.5 | 25.6 | .39 | 4 | 12 | 1 | 18 |
| November..... | 26 | -41 | 6.3 | -4.8 | .8 | .03 | 1 | 17 | 1 | 12 |
| December..... | 12 | -57 | -18.7 | -33.2 | -26.0 | .09 | 2 | 21 | 1 | 9 |

HAINES. Latitude 59° 13', longitude 135° 34'. Rev. E. E. Bromley, observer

| | | | | | | | | | | |
|----------------|----|----|------|------|------|-------|----|----|----|----|
| January..... | 49 | 23 | 40.2 | 32.3 | 36.2 | 12.18 | 18 | 1 | 6 | 24 |
| February..... | 42 | 17 | 35.5 | 25.3 | 30.4 | 6.93 | 15 | 6 | 7 | 15 |
| March..... | 57 | 29 | 43.9 | 33.5 | 38.7 | 6.58 | 17 | 1 | 13 | 17 |
| April..... | 56 | 29 | 49.2 | 37.8 | 43.5 | 4.86 | 19 | 7 | 11 | 12 |
| May..... | 67 | 30 | 58.5 | 40.9 | 49.7 | 2.38 | 16 | 12 | 7 | 12 |
| June..... | 82 | 35 | 68.3 | 47.0 | 57.6 | 1.70 | 5 | 15 | 8 | 7 |
| July..... | 81 | 41 | 66.9 | 49.7 | 58.3 | 1.86 | 15 | 9 | 7 | 15 |
| August..... | 82 | 39 | 66.7 | 47.9 | 57.3 | .74 | 7 | 11 | 3 | 17 |
| September..... | 71 | 24 | 57.8 | 36.7 | 47.2 | 1.02 | 6 | 19 | 1 | 10 |
| October..... | 62 | 23 | 48.0 | 36.5 | 42.2 | 11.08 | 20 | 6 | 4 | 21 |
| November..... | 49 | 13 | 38.2 | 28.6 | 33.4 | 3.46 | 12 | 15 | 1 | 14 |
| December..... | 45 | 4 | 31.7 | 19.5 | 25.6 | 11.59 | 23 | 5 | 1 | 25 |

Condensed meteorological reports—Continued

HOLY CROSS. Latitude 62° 16', longitude 159° 50'. Holy Cross Mission, observer

| Month | Temperature | | | | | Total precipitation <i>Inches</i> | Number of days— | | | |
|----------------|-------------|---------|--------------|--------------|--------------|--------------------------------------|-----------------|-------|---------------|--------|
| | Maximum | Minimum | Mean maximum | Mean minimum | Monthly mean | | Rain or snow | Clear | Partly cloudy | Cloudy |
| | °F. | °F. | °F. | °F. | °F. | | | | | |
| January..... | 39 | -15 | 18.2 | 5.2 | 11.7 | 0.66 | 7 | 16 | 5 | 10 |
| February..... | 32 | -37 | 6.9 | -7.0 | 0 | 0.27 | 2 | 25 | 2 | 1 |
| March..... | 45 | -6 | 33.7 | 18.1 | 25.9 | 0.05 | 1 | 11 | 9 | 11 |
| April..... | 56 | 13 | 44.3 | 26.4 | 35.4 | 0.63 | 2 | 18 | 5 | 7 |
| May..... | 67 | 20 | 55.7 | 32.5 | 44.1 | 0.86 | 5 | 15 | 9 | 7 |
| June..... | 87 | 34 | 73.0 | 46.1 | 59.6 | 0.16 | 2 | 25 | 0 | 5 |
| July..... | 80 | 40 | 70.2 | 49.5 | 59.8 | 1.17 | 8 | 15 | 7 | 9 |
| August..... | 86 | 31 | 66.7 | 46.5 | 56.6 | 1.99 | 10 | 10 | 7 | 14 |
| September..... | 64 | 32 | 56.6 | 42.8 | 49.7 | 2.03 | 12 | 5 | 5 | 20 |
| October..... | 60 | 14 | 41.0 | 25.9 | 33.4 | 1.44 | 5 | 13 | 6 | 12 |
| November..... | 47 | -7 | 24.0 | 13.7 | 18.8 | 1.90 | 6 | 11 | 1 | 18 |
| December..... | 37 | -39 | 0.9 | -11.3 | -5.2 | 0.96 | 8 | 15 | 5 | 11 |

HYDABURG. Latitude 55° 12', longitude 132° 49'. Charles E. Smith, observer

| | | | | | | | | | | |
|----------------|----|----|------|------|------|-------|-------|-------|-------|-------|
| January..... | 54 | 31 | 45.9 | 40.4 | 43.2 | ----- | ----- | 2 | 7 | 22 |
| February..... | 48 | 25 | 43.8 | 37.2 | 40.5 | ----- | ----- | 9 | 10 | 9 |
| March..... | 57 | 35 | 48.0 | 41.3 | 44.6 | ----- | ----- | 13 | 12 | 6 |
| April..... | 66 | 29 | 59.9 | 41.4 | 50.6 | ----- | ----- | 9 | 7 | 14 |
| May..... | 68 | 38 | 59.2 | 42.6 | 50.9 | ----- | ----- | 4 | 11 | 16 |
| June..... | 83 | 39 | 68.4 | 45.2 | 56.8 | 6.53 | 12 | 10 | 7 | 13 |
| July..... | 78 | 45 | 67.5 | 50.9 | 59.2 | 11.00 | 19 | 6 | 9 | 16 |
| August..... | 83 | 42 | 72.5 | 50.2 | 61.4 | 2.62 | 12 | 15 | 6 | 10 |
| September..... | 78 | 29 | 71.2 | 41.1 | 56.2 | ----- | ----- | ----- | ----- | ----- |
| October..... | 72 | 38 | 65.5 | 42.2 | 54.8 | 7.21 | 20 | 7 | 10 | 14 |
| November..... | 63 | 21 | 55.1 | 35.8 | 45.4 | 3.73 | 18 | 11 | 10 | 9 |
| December..... | 61 | 23 | 47.7 | 37.4 | 42.6 | 5.10 | 21 | 8 | 4 | 19 |

IGLOO. Latitude 65° 08', longitude 165° 04'. Albert Schmidt, observer

| | | | | | | | | | | |
|----------------|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| January..... | 30 | -48 | 8.4 | -13.1 | -2.4 | 0.09 | 6 | 7 | 13 | 11 |
| February..... | 22 | -43 | -8.4 | -26.9 | -17.6 | 0.04 | 1 | 14 | 7 | 7 |
| March..... | 45 | -36 | 19.9 | -3.3 | 8.3 | 0.11 | 5 | 5 | 14 | 12 |
| April..... | 43 | -13 | 28.0 | 9.0 | 18.5 | 0.13 | 3 | 15 | 10 | 5 |
| May..... | 53 | 11 | 41.7 | 22.9 | 32.3 | 0.18 | 3 | 9 | 15 | 7 |
| June..... | 76 | 25 | 60.5 | 37.8 | 49.2 | ----- | ----- | 13 | 9 | 4 |
| July..... | 83 | ----- | ----- | ----- | ----- | 1.05 | ----- | ----- | ----- | ----- |
| August..... | 82 | 32 | 58.1 | 40.0 | 49.0 | 3.00 | ----- | ----- | ----- | ----- |
| September..... | 61 | 24 | 54.4 | 40.7 | 47.6 | 1.05 | 14 | 1 | 10 | 19 |
| October..... | 53 | 11 | 36.7 | 23.9 | 30.3 | 0.56 | 4 | 11 | 7 | 13 |
| November..... | 43 | -6 | 25.4 | 14.7 | 20.6 | 0.57 | 7 | 5 | 5 | 20 |
| December..... | 17 | -39 | -1.7 | -17.8 | -9.8 | 0.43 | 8 | 8 | 11 | 12 |

JUNEAU. Latitude 58° 18', longitude 134° 24'. Weather Bureau, observer

| | | | | | | | | | | |
|----------------|----|----|------|------|------|-------|----|----|---|----|
| January..... | 50 | 26 | 43.3 | 35.8 | 39.6 | 11.62 | 24 | 1 | 1 | 29 |
| February..... | 50 | 24 | 39.0 | 31.1 | 35.0 | 5.85 | 18 | 2 | 1 | 25 |
| March..... | 54 | 32 | 44.9 | 36.8 | 40.8 | 8.71 | 27 | 0 | 3 | 28 |
| April..... | 55 | 31 | 48.3 | 39.2 | 43.8 | 7.62 | 22 | 5 | 0 | 26 |
| May..... | 67 | 36 | 56.8 | 41.2 | 49.0 | 3.72 | 18 | 3 | 9 | 19 |
| June..... | 81 | 39 | 66.4 | 48.3 | 57.4 | 2.59 | 10 | 10 | 6 | 14 |
| July..... | 77 | 46 | 64.3 | 50.8 | 57.6 | 4.00 | 21 | 3 | 7 | 21 |
| August..... | 80 | 43 | 64.9 | 50.3 | 57.6 | 2.90 | 15 | 9 | 7 | 15 |
| September..... | 70 | 32 | 58.7 | 42.4 | 50.6 | 3.28 | 9 | 13 | 6 | 11 |
| October..... | 60 | 26 | 51.2 | 40.5 | 45.5 | 13.46 | 20 | 6 | 4 | 21 |
| November..... | 55 | 20 | 42.1 | 33.2 | 37.6 | 3.21 | 14 | 12 | 2 | 16 |
| December..... | 47 | 13 | 36.1 | 28.8 | 32.4 | 14.43 | 29 | 2 | 2 | 27 |

Condensed meteorological reports—Continued

KATALLA. Latitude 60° 12', longitude 144° 33'. Mrs. B. H. White, observer

| Month | Temperature | | | | | Total precipitation | Number of days— | | | |
|----------------|-------------|---------|--------------|--------------|--------------|---------------------|-----------------|-------|---------------|--------|
| | Maximum | Minimum | Mean maximum | Mean minimum | Monthly mean | | Rain or snow | Clear | Partly cloudy | Cloudy |
| | °F. | °F. | °F. | °F. | °F. | Inches | | | | |
| January..... | 49 | 30 | 42.0 | 34.9 | 38.4 | 16.93 | 29 | 0 | 3 | 28 |
| February..... | 44 | 7 | 36.8 | 26.0 | 31.4 | 5.56 | 20 | 2 | 7 | 19 |
| March..... | 49 | 30 | 42.4 | 34.4 | 38.4 | 17.53 | 31 | 0 | 2 | 29 |
| April..... | 55 | 25 | 47.3 | 35.2 | 41.2 | 13.30 | 20 | 4 | 9 | 17 |
| May..... | 65 | 34 | 53.2 | 40.2 | 46.7 | 6.87 | 19 | 7 | 6 | 18 |
| June..... | 80 | 38 | 64.0 | 48.0 | 56.0 | 2.93 | 7 | 9 | 10 | 11 |
| July..... | 66 | 42 | 60.8 | 49.1 | 55.0 | 10.58 | 20 | 2 | 9 | 20 |
| August..... | 69 | 40 | 62.0 | 50.2 | 56.1 | 10.26 | 13 | 4 | 7 | 20 |
| September..... | 68 | 35 | 58.9 | 44.3 | 51.6 | 5.60 | 9 | 12 | 8 | 10 |
| October..... | 58 | 28 | 50.5 | 40.0 | 45.2 | 21.11 | 22 | 7 | 3 | 21 |
| November..... | 50 | 15 | 42.0 | 32.2 | 37.1 | 8.69 | 11 | 7 | 8 | 15 |
| December..... | 44 | 17 | 37.6 | 28.0 | 32.0 | 7.49 | 22 | 1 | 6 | 24 |

KENNECOTT. Latitude 61° 29', longitude 142° 57'. Kennecott Copper Corporation, observer

| | | | | | | | | | | |
|----------------|----|-----|------|------|------|------|----|----|----|----|
| January..... | 40 | -4 | 28.6 | 14.3 | 21.4 | 1.08 | 5 | 9 | 8 | 14 |
| February..... | 35 | -15 | 13.9 | -2.7 | 5.6 | .42 | 5 | 14 | 9 | 5 |
| March..... | 47 | -1 | 37.8 | 22.6 | 30.2 | 1.02 | 6 | 12 | 5 | 14 |
| April..... | 54 | 9 | 44.3 | 25.2 | 34.8 | .06 | 1 | 12 | 12 | 6 |
| May..... | 63 | 25 | 57.1 | 32.7 | 44.9 | .93 | 1 | 12 | 8 | 11 |
| June..... | 77 | 35 | 67.1 | 41.3 | 54.2 | .50 | 4 | 15 | 11 | 4 |
| July..... | 78 | 38 | 63.0 | 41.0 | 52.0 | 3.12 | 16 | 8 | 4 | 19 |
| August..... | 71 | 34 | 61.3 | 39.9 | 50.6 | 2.13 | 6 | 12 | 5 | 14 |
| September..... | 62 | 29 | 56.4 | 36.2 | 46.3 | 1.68 | 6 | 8 | 7 | 15 |
| October..... | 50 | 10 | 41.8 | 27.5 | 34.6 | 2.12 | 10 | 9 | 3 | 19 |
| November..... | 48 | -17 | 23.6 | 11.3 | 17.4 | .27 | 2 | 8 | 7 | 15 |
| December..... | 37 | -16 | 15.6 | -1 | 7.8 | 1.90 | 10 | 8 | 4 | 19 |

KETCHIKAN. Latitude 55° 20', longitude 131° 37'. W. H. Dickey, observer

| | | | | | | | | | | |
|----------------|----|----|------|------|------|-------|----|----|----|----|
| January..... | 54 | 25 | 45.6 | 36.9 | 41.2 | 27.57 | 27 | 1 | 5 | 25 |
| February..... | 48 | 22 | 43.1 | 32.6 | 37.8 | 19.34 | 23 | 5 | 4 | 19 |
| March..... | 62 | 27 | 47.3 | 34.9 | 41.1 | 13.08 | 21 | 4 | 11 | 16 |
| April..... | 57 | 25 | 49.3 | 38.1 | 43.7 | 17.33 | 22 | 5 | 4 | 21 |
| May..... | 68 | 32 | 54.1 | 41.2 | 47.6 | 12.36 | 25 | 5 | 8 | 18 |
| June..... | 80 | 40 | 64.5 | 46.6 | 55.6 | 10.42 | 13 | 10 | 10 | 10 |
| July..... | 72 | 43 | 63.3 | 50.8 | 57.0 | 9.32 | 24 | 3 | 4 | 13 |
| August..... | 84 | 45 | 69.1 | 51.8 | 60.4 | 6.09 | 12 | 11 | 8 | 12 |
| September..... | 75 | 28 | 64.2 | 41.4 | 52.8 | 3.39 | 8 | 17 | 7 | 6 |
| October..... | 62 | 29 | 54.7 | 40.4 | 47.6 | 22.89 | 19 | 6 | 7 | 18 |
| November..... | 60 | 25 | 46.8 | 34.9 | 40.8 | 8.16 | 18 | 9 | 2 | 19 |
| December..... | 51 | 15 | 42.2 | 32.5 | 37.4 | 21.76 | 27 | 4 | 0 | 27 |

KODIAK. Latitude 57° 47', longitude 152° 22'. Experiment station, observer

| | | | | | | | | | | |
|----------------|----|----|------|------|------|-------|----|----|----|----|
| January..... | 42 | 27 | 40.1 | 33.0 | 36.6 | 7.28 | 26 | 2 | 2 | 27 |
| February..... | 45 | 11 | 37.1 | 27.8 | 32.4 | 4.12 | 18 | 3 | 5 | 20 |
| March..... | 47 | 27 | 42.0 | 34.4 | 38.2 | 8.81 | 25 | 0 | 10 | 21 |
| April..... | 54 | 30 | 45.7 | 36.2 | 41.0 | 5.30 | 23 | 5 | 9 | 16 |
| May..... | 60 | 34 | 48.4 | 39.7 | 44.0 | 9.00 | 25 | 1 | 8 | 22 |
| June..... | 81 | 40 | 62.1 | 47.3 | 54.7 | 2.12 | 8 | 10 | 6 | 14 |
| July..... | 73 | 44 | 62.2 | 50.9 | 56.6 | 3.13 | 16 | 5 | 9 | 17 |
| August..... | 71 | 40 | 61.0 | 50.7 | 55.8 | 5.19 | 21 | 2 | 9 | 20 |
| September..... | 69 | 42 | 60.6 | 49.3 | 55.0 | 4.80 | 15 | 1 | 12 | 17 |
| October..... | 60 | 28 | 50.7 | 40.2 | 45.4 | 11.32 | 18 | 6 | 6 | 19 |
| November..... | 49 | 30 | 45.5 | 38.8 | 42.2 | 7.66 | 22 | 4 | 4 | 22 |
| December..... | 47 | 7 | 37.5 | 26.3 | 31.9 | 8.35 | 21 | 4 | 6 | 21 |

Condensed meteorological reports—Continued

LATOUCHE. Latitude 60° 03', longitude 147° 55'. Kennecott Copper Corporation, observer

| Month | Temperature | | | | | Total precip- itation | Number of days— | | | |
|----------------|--------------|--------------|----------------------|----------------------|----------------------|-----------------------------|-----------------|-------|------------------|--------|
| | Maxi- mum | Mini- mum | Mean maxi- mum | Mean mini- mum | Month- ly mean | | Rain or snow | Clear | Partly cloudy | Cloudy |
| | °F. | °F. | °F. | °F. | °F. | Inches | | | | |
| January..... | 46 | 30 | 41.5 | 35.4 | 38.4 | 34.96 | 30 | 0 | 2 | 29 |
| February..... | 45 | 10 | 37.7 | 28.0 | 32.8 | 13.50 | 20 | 7 | 3 | 18 |
| March..... | 47 | 30 | 42.7 | 34.1 | 38.4 | 37.27 | 29 | 0 | 0 | 31 |
| April..... | 55 | 26 | 47.8 | 35.7 | 41.8 | 20.92 | 21 | 10 | 2 | 18 |
| May..... | 65 | 36 | 52.5 | 41.2 | 46.8 | 17.28 | 25 | 7 | 2 | 22 |
| June..... | 82 | 39 | 66.3 | 49.1 | 57.7 | 4.61 | 8 | 15 | 6 | 9 |
| July..... | 70 | 48 | 61.0 | 52.9 | 57.0 | 14.09 | 21 | 7 | 5 | 19 |
| August..... | 67 | 43 | 61.8 | 52.3 | 57.0 | 12.68 | 19 | 5 | 11 | 15 |
| September..... | 63 | 39 | 58.0 | 47.7 | 52.8 | 13.62 | 14 | 8 | 10 | 12 |
| October..... | 62 | 28 | 52.8 | 40.4 | 46.6 | 34.75 | 22 | 10 | 4 | 17 |
| November..... | 57 | 24 | 45.3 | 36.2 | 40.8 | 23.23 | 20 | 8 | 5 | 17 |
| December..... | 48 | 19 | 38.5 | 29.6 | 34.0 | 21.23 | 27 | 5 | 1 | 25 |

MCKINLEY PARK. Latitude 63° 44', longitude 148° 55'. H. P. Karstens and R. P. Mackie, observers

| | | | | | | | | | | |
|----------------|----|-----|------|------|------|------|----|----|----|----|
| January..... | 47 | -10 | 33.8 | 15.6 | 24.7 | 0.34 | 3 | 8 | 9 | 14 |
| February..... | 37 | -32 | 16.6 | -5.5 | 5.6 | .15 | 4 | 21 | 4 | 3 |
| March..... | 51 | -8 | 41.6 | 20.2 | 30.9 | 1.13 | 4 | 17 | 7 | 7 |
| April..... | 57 | 2 | 46.1 | 21.5 | 33.8 | 2.70 | 2 | 17 | 9 | 4 |
| May..... | 66 | 22 | 59.6 | 31.8 | 45.7 | 1.48 | 3 | 15 | 10 | 6 |
| June..... | 89 | 34 | 70.5 | 43.2 | 56.8 | 3.95 | 11 | 13 | 6 | 11 |
| July..... | 81 | 34 | 70.7 | 45.8 | 58.2 | 6.12 | 12 | 10 | 10 | 11 |
| August..... | 83 | 32 | 68.5 | 43.3 | 55.9 | .46 | 2 | 9 | 5 | 17 |
| September..... | 70 | 25 | 58.9 | 39.3 | 49.1 | 2.78 | 11 | 8 | 8 | 14 |
| October..... | 59 | 0 | 45.9 | 23.2 | 34.6 | 2.75 | 3 | 10 | 8 | 13 |
| November..... | 56 | -19 | 29.0 | 12.6 | 20.2 | .28 | 1 | 22 | 4 | 4 |
| December..... | 42 | -34 | 15.7 | -8.5 | 3.6 | .52 | 6 | 16 | 11 | 4 |

MATANUSKA. Latitude 61° 30', longitude 149° 15'. Experiment station, observer

| | | | | | | | | | | |
|----------------|----|-----|------|------|------|------|----|----|----|----|
| January..... | 46 | 10 | 35.4 | 24.5 | 30.0 | 0.66 | 3 | 4 | 12 | 15 |
| February..... | 38 | -14 | 27.6 | 11.9 | 19.8 | .10 | 3 | 15 | 3 | 10 |
| March..... | 52 | 23 | 44.2 | 33.5 | 38.8 | .12 | 2 | 2 | 12 | 17 |
| April..... | 58 | 30 | 52.0 | 37.0 | 44.5 | .05 | 1 | 8 | 14 | 8 |
| May..... | 71 | 34 | 62.2 | 40.9 | 51.6 | .29 | 3 | 8 | 12 | 11 |
| June..... | 84 | 38 | 68.1 | 45.5 | 56.8 | .65 | 4 | 11 | 10 | 9 |
| July..... | 70 | 34 | 60.4 | 41.1 | 50.8 | 3.57 | 15 | 3 | 17 | 11 |
| August..... | 77 | 39 | 66.7 | 46.6 | 56.6 | 2.32 | 15 | 11 | 12 | 8 |
| September..... | 66 | 31 | 60.1 | 41.5 | 50.8 | 2.21 | 11 | 9 | 10 | 11 |
| October..... | 57 | 23 | 48.8 | 34.0 | 41.4 | 1.36 | 6 | 10 | 7 | 14 |
| November..... | 57 | -6 | 34.5 | 23.6 | 29.0 | .25 | 2 | 11 | 0 | 19 |
| December..... | | | | | | | | | | |

NOME. Latitude 64° 30', longitude 165° 24'. Weather Bureau, observer

| | | | | | | | | | | |
|----------------|----|-----|------|-------|------|------|----|----|----|----|
| January..... | 35 | -25 | 18.0 | 1.7 | 9.8 | 0.25 | 4 | 4 | 16 | 11 |
| February..... | 33 | -29 | 5.6 | -10.4 | -2.4 | .06 | 1 | 17 | 7 | 4 |
| March..... | 40 | -14 | 27.7 | 13.8 | 20.8 | .35 | 5 | 3 | 14 | 14 |
| April..... | 47 | -2 | 34.8 | 19.8 | 27.3 | .47 | 7 | 10 | 10 | 10 |
| May..... | 52 | 14 | 41.3 | 26.2 | 33.8 | .09 | 3 | 12 | 8 | 11 |
| June..... | 72 | 29 | 53.7 | 38.4 | 46.0 | .83 | 9 | 13 | 8 | 9 |
| July..... | 78 | 32 | 59.8 | 44.2 | 52.0 | 2.06 | 14 | 8 | 9 | 14 |
| August..... | 80 | 28 | 60.1 | 45.7 | 52.9 | 4.01 | 20 | 3 | 12 | 16 |
| September..... | 58 | 28 | 52.3 | 44.1 | 48.2 | 4.19 | 24 | 1 | 6 | 23 |
| October..... | 50 | 12 | 40.0 | 26.4 | 33.2 | 1.61 | 7 | 17 | 10 | 4 |
| November..... | 49 | 6 | 32.7 | 22.0 | 27.4 | .64 | 9 | 12 | 10 | 8 |
| December..... | 22 | -17 | 8.0 | -3.4 | 2.3 | .17 | 2 | 13 | 13 | 5 |

Condensed meteorological reports—Continued

NOORVIK. Latitude 66° 30', longitude 161° 00'. Mrs. R. M. Chance, observer

| Month | Temperature | | | | | Total precip- itation | Number of days— | | | |
|----------------|--------------|--------------|----------------------|----------------------|----------------------|-----------------------------|-----------------|-------|------------------|--------|
| | Maxi- mum | Mini- mum | Mean maxi- mum | Mean mini- mum | Month- ly mean | | Rain or snow | Clear | Partly cloudy | Cloudy |
| | °F. | °F. | °F. | °F. | °F. | Inches | | | | |
| January..... | 29 | -45 | 12.8 | -3.8 | 4.5 | 0.95 | 8 | 13 | 5 | 13 |
| February..... | 27 | -40 | -8.3 | -22.4 | -15.4 | .14 | 1 | 18 | 2 | 8 |
| March..... | 40 | -22 | 21.5 | 5.0 | 13.2 | .30 | 3 | 15 | 2 | 14 |
| April..... | 43 | -6 | 31.9 | 13.5 | 22.7 | .28 | 3 | 22 | 2 | 6 |
| May..... | 56 | 14 | 42.2 | 24.5 | 33.4 | .26 | 2 | 15 | 7 | 9 |
| June..... | 81 | 28 | 65.8 | 42.5 | 54.2 | .15 | 1 | 18 | 10 | 2 |
| July..... | | | | | | | | | | |
| August..... | 83 | 32 | 59.1 | 43.4 | 51.2 | | | | | |
| September..... | 59 | 25 | 51.6 | 41.4 | 46.5 | 2.87 | 12 | 9 | 5 | 16 |
| October..... | 45 | 4 | 34.3 | 23.4 | 28.8 | 1.87 | 4 | 16 | 2 | 12 |
| November..... | 36 | -8 | 23.6 | 14.1 | 18.8 | .42 | 4 | 16 | 1 | 12 |
| December..... | 15 | -44 | -6.7 | -23.2 | -15.0 | .68 | 3 | 16 | 3 | 6 |

PILOT STATION. Latitude 61° 58', longitude 163° 00'. Wm. R. E. Moore and V. J. Berto, observers

| | | | | | | | | | | |
|----------------|----|-----|------|------|------|------|----|----|----|----|
| January..... | 35 | -16 | 18.9 | 5.3 | 12.1 | 0.62 | 6 | 14 | 2 | 15 |
| February..... | 31 | -31 | 12.1 | -3.0 | 4.6 | T. | 0 | 23 | 2 | 3 |
| March..... | 50 | -15 | 34.4 | 17.7 | 26.0 | .48 | 6 | 17 | 5 | 9 |
| April..... | 56 | 9 | 45.0 | 25.5 | 35.2 | .61 | 5 | 7 | 14 | 9 |
| May..... | 65 | 19 | 49.9 | 28.7 | 39.3 | .84 | 6 | 14 | 6 | 8 |
| June..... | 86 | 31 | 67.0 | 43.2 | 55.1 | .48 | 3 | 21 | 1 | 8 |
| July..... | | | | | | | | | | |
| August..... | 77 | 28 | 66.4 | 45.1 | 55.8 | 1.42 | | 7 | 9 | 6 |
| September..... | 65 | 29 | 55.1 | 43.2 | 49.2 | 3.70 | 14 | 9 | 8 | 12 |
| October..... | 53 | 10 | 40.5 | 26.0 | 33.2 | .68 | 3 | 13 | 9 | 9 |
| November..... | 48 | -4 | 28.1 | 18.1 | 23.1 | 1.04 | 3 | 12 | 11 | 7 |
| December..... | 21 | -28 | 9.8 | -4.6 | 2.6 | | | 5 | 22 | 4 |

RAMPART. Latitude 65° 30', longitude 150° 15'. Clement Anderson, observer

| | | | | | | | | | | |
|----------------|----|-----|------|-------|-------|------|----|----|----|----|
| January..... | 20 | -20 | 10.4 | 0.4 | 5.4 | 0.39 | 2 | 4 | 9 | 18 |
| February..... | 10 | -42 | 1.8 | -13.2 | -5.7 | T. | 0 | 13 | 12 | 3 |
| March..... | 45 | -16 | 23.4 | 5.6 | 14.5 | .30 | 2 | 16 | 1 | 14 |
| April..... | 57 | -3 | 38.8 | 16.7 | 27.8 | T. | 0 | 15 | 11 | 4 |
| May..... | 69 | 24 | 56.5 | 33.3 | 49.9 | .45 | 4 | 13 | 10 | 8 |
| June..... | 87 | 34 | 73.8 | 44.7 | 59.2 | .99 | 5 | 16 | 11 | 3 |
| July..... | 82 | 36 | 70.3 | 45.5 | 57.9 | 2.30 | 8 | 15 | 7 | 9 |
| August..... | 85 | 31 | 67.8 | 40.7 | 54.2 | .56 | 6 | 12 | 8 | 11 |
| September..... | 65 | 24 | 55.0 | 35.8 | 45.4 | 1.61 | 11 | 8 | 3 | 19 |
| October..... | 48 | -2 | 31.9 | 20.0 | 26.0 | 1.27 | 5 | 6 | 4 | 21 |
| November..... | 25 | -22 | 14.1 | 4.0 | 9.0 | .30 | 1 | 12 | 5 | 13 |
| December..... | 20 | -48 | -8.1 | -22.6 | -15.4 | .64 | 5 | 14 | 5 | 12 |

ST. MICHAEL. Latitude 63° 29', longitude 162° 01'. P. J. Evans, observer

| | | | | | | | | | | |
|----------------|----|-----|------|------|------|------|---|--|--|--|
| January..... | 39 | -17 | 19.5 | 4.1 | 11.8 | | | | | |
| February..... | 30 | -31 | 6.5 | -7.4 | -0.4 | | | | | |
| March..... | 43 | -21 | 27.7 | 11.5 | 19.6 | | | | | |
| April..... | 47 | 7 | 34.9 | 20.6 | 27.8 | | | | | |
| May..... | 45 | 19 | 40.1 | 27.6 | 33.8 | | | | | |
| June..... | 69 | 28 | 57.7 | 42.1 | 49.9 | | | | | |
| July..... | 74 | 46 | 53.5 | 50.5 | 57.0 | | | | | |
| August..... | 76 | 36 | 63.3 | 50.3 | 56.8 | | | | | |
| September..... | 65 | 36 | 55.2 | 46.4 | 50.8 | | | | | |
| October..... | 56 | 19 | 40.8 | 30.3 | 35.6 | | | | | |
| November..... | 44 | 5 | 31.8 | 23.8 | 27.8 | 0.06 | 2 | | | |
| December..... | 31 | -22 | 6.0 | -6.3 | -2.2 | .50 | 3 | | | |

Condensed meteorological reports—Continued

ST. PAUL ISLAND. Latitude 57° 15', longitude 170° 10'. Weather Bureau, observer

| Month | Temperature | | | | | Total precip- itation | Number of days— | | | |
|----------------|--------------|--------------|----------------------|----------------------|----------------------|-----------------------------|-----------------|-------|------------------|--------|
| | Maxi- mum | Mini- mum | Mean maxi- mum | Mean mini- mum | Month- ly mean | | Rain or snow | Clear | Partly cloudy | Cloudy |
| | °F. | °F. | °F. | °F. | °F. | Inches | | | | |
| January..... | 37 | 15 | 31.0 | 25.8 | 28.4 | 0.76 | 15 | 3 | 9 | 19 |
| February..... | 37 | 7 | 24.9 | 18.7 | 21.8 | .42 | 16 | 3 | 6 | 19 |
| March..... | 39 | 13 | 30.8 | 24.7 | 27.8 | .93 | 18 | 2 | 15 | 14 |
| April..... | 42 | 21 | 35.9 | 29.3 | 32.6 | .19 | 8 | 6 | 7 | 17 |
| May..... | 49 | 27 | 39.9 | 30.8 | 35.4 | .21 | 7 | 3 | 10 | 18 |
| June..... | 62 | 33 | 50.7 | 40.2 | 45.4 | .36 | 7 | 7 | 9 | 14 |
| July..... | 60 | 41 | 51.8 | 45.8 | 48.8 | 2.20 | 20 | 0 | 4 | 27 |
| August..... | 62 | 43 | 54.0 | 47.8 | 50.9 | 4.18 | 18 | 1 | 11 | 19 |
| September..... | 55 | 44 | 51.4 | 46.7 | 49.0 | 3.16 | 21 | 0 | 6 | 24 |
| October..... | 50 | 33 | 44.6 | 39.4 | 42.0 | 3.20 | 23 | 2 | 10 | 19 |
| November..... | 48 | 32 | 42.5 | 36.8 | 39.6 | 1.75 | 14 | 3 | 10 | 17 |
| December..... | 41 | 16 | 33.4 | 26.1 | 29.8 | 1.12 | 17 | 1 | 10 | 20 |

SHAW ISLAND. Latitude 58° 12', longitude 136° 15'. Mrs. F. Shotter, observer

| | | | | | | | | | | |
|----------------|----|----|------|------|------|-------|----|----|----|----|
| January..... | 53 | 30 | 43.9 | 35.0 | 39.4 | 15.97 | 23 | 2 | 10 | 19 |
| February..... | 49 | 28 | 42.6 | 32.4 | 37.5 | 7.11 | 16 | 8 | 7 | 13 |
| March..... | 55 | 30 | 46.2 | 34.6 | 40.4 | 13.18 | 22 | 5 | 9 | 17 |
| April..... | 62 | 31 | 51.8 | 37.0 | 44.4 | 6.19 | 17 | 8 | 16 | 6 |
| May..... | 66 | 36 | 56.8 | 40.4 | 48.6 | 4.75 | 21 | 9 | 15 | 7 |
| June..... | 81 | 41 | 66.0 | 45.8 | 55.9 | 2.60 | 11 | 16 | 9 | 5 |
| July..... | 79 | 44 | 63.3 | 47.8 | 55.6 | 4.17 | 20 | 1 | 18 | 12 |
| August..... | 70 | 44 | 61.9 | 47.6 | 54.8 | 3.43 | 13 | 8 | 15 | 8 |
| September..... | 59 | 30 | 50.2 | 39.1 | 44.6 | 18.34 | 21 | 10 | 3 | 17 |
| October..... | 54 | 26 | 44.4 | 34.8 | 39.6 | 4.13 | 11 | 15 | 2 | 13 |
| November..... | 49 | 19 | 39.1 | 29.1 | 34.1 | 28.47 | 31 | 4 | 3 | 24 |

SITKA. Latitude 57° 04', longitude 135° 20'. Weather Bureau, observer

| | | | | | | | | | | |
|----------------|----|----|------|------|------|-------|----|----|----|----|
| January..... | 54 | 30 | 47.6 | 38.8 | 43.2 | 15.20 | 24 | 3 | 7 | 21 |
| February..... | 50 | 26 | 44.4 | 33.9 | 39.2 | 9.89 | 19 | 2 | 9 | 17 |
| March..... | 62 | 32 | 49.7 | 38.0 | 43.8 | 9.25 | 25 | 3 | 13 | 16 |
| April..... | 59 | 28 | 50.9 | 40.0 | 45.4 | 5.98 | 22 | 4 | 6 | 20 |
| May..... | 64 | 36 | 56.7 | 42.1 | 49.4 | 3.83 | 22 | 9 | 7 | 15 |
| June..... | 78 | 43 | 63.2 | 48.9 | 56.0 | 3.18 | 12 | 11 | 9 | 10 |
| July..... | 76 | 44 | 64.8 | 51.1 | 58.0 | 2.24 | 22 | 4 | 7 | 18 |
| August..... | 73 | 48 | 67.3 | 52.5 | 59.9 | 3.67 | 13 | 10 | 7 | 14 |
| September..... | 73 | 32 | 63.9 | 46.1 | 55.0 | 3.53 | 12 | 18 | 3 | 9 |
| October..... | 65 | 34 | 56.4 | 42.4 | 49.4 | 15.63 | 20 | 9 | 4 | 18 |
| November..... | 56 | 26 | 48.8 | 36.2 | 42.5 | 4.84 | 14 | 10 | 7 | 13 |
| December..... | 50 | 19 | 42.7 | 32.4 | 37.6 | 17.12 | 28 | 4 | 1 | 26 |

SKAGWAY. Latitude 59° 27', longitude 135° 19'. F. J. Vandewall, observer

| | | | | | | | | | | |
|----------------|----|----|------|------|------|------|----|----|----|----|
| January..... | 50 | 25 | 41.9 | 33.4 | 37.6 | 4.20 | 16 | 4 | 2 | 25 |
| February..... | 45 | 18 | 35.1 | 27.1 | 31.1 | 1.91 | 11 | 7 | 6 | 15 |
| March..... | 58 | 27 | 46.9 | 34.8 | 40.8 | 3.16 | 16 | 2 | 11 | 18 |
| April..... | 60 | 27 | 52.2 | 37.6 | 44.9 | 2.33 | 16 | 7 | 13 | 10 |
| May..... | 72 | 29 | 61.9 | 39.7 | 50.8 | 1.26 | 15 | 14 | 9 | 8 |
| June..... | 86 | 35 | 70.0 | 44.2 | 57.1 | 1.74 | 6 | 19 | 4 | 7 |
| July..... | 85 | 38 | 68.8 | 50.1 | 59.4 | 1.55 | 15 | 6 | 17 | 8 |
| August..... | 86 | 33 | 69.1 | 47.2 | 58.2 | .56 | 3 | 12 | 9 | 10 |
| September..... | 68 | 20 | 59.8 | 35.5 | 47.6 | .66 | 8 | 15 | 7 | 8 |
| October..... | 62 | 25 | 50.7 | 37.7 | 44.2 | 5.42 | 15 | 8 | 3 | 20 |
| November..... | 53 | 12 | 37.9 | 29.1 | 33.5 | 1.28 | 12 | 15 | 3 | 12 |
| December..... | 47 | 9 | 32.4 | 22.8 | 27.6 | 4.76 | 18 | 2 | 4 | 25 |

Condensed meteorological reports—Continued

TALKEETNA. Latitude 62° 19', longitude 150° 16'. P. W. McCarthy, observer

| Month | Temperature | | | | | Total precipitation | Number of days— | | | |
|----------------|-------------|---------|--------------|--------------|--------------|---------------------|-----------------|-------|---------------|--------|
| | Maximum | Minimum | Mean maximum | Mean minimum | Monthly mean | | Rain or snow | Clear | Partly cloudy | Cloudy |
| | °F. | °F. | °F. | °F. | °F. | Inches | | | | |
| January..... | 45 | -9 | 32.8 | 20.1 | 26.4 | 1.52 | 8 | 5 | 8 | 18 |
| February..... | 35 | -28 | 24.8 | .9 | 12.8 | .31 | 2 | 16 | 4 | 8 |
| March..... | 55 | 2 | 42.9 | 23.9 | 33.4 | .99 | 6 | 3 | 5 | 23 |
| April..... | 60 | 8 | 53.4 | 25.6 | 39.5 | 1.60 | 5 | 11 | 7 | 12 |
| May..... | 74 | 25 | 64.0 | 33.5 | 48.8 | .99 | 8 | 2 | 12 | 17 |
| June..... | 88 | 32 | 74.6 | 42.6 | 58.6 | .40 | 5 | 12 | 3 | 15 |
| July..... | 84 | 38 | 73.6 | 46.3 | 60.0 | 2.66 | 10 | 7 | 6 | 18 |
| August..... | 85 | 38 | 69.8 | 45.4 | 57.6 | 3.82 | 17 | 6 | 3 | 22 |
| September..... | 70 | 26 | 62.4 | 39.5 | 51.0 | 3.43 | 12 | 8 | 3 | 19 |
| October..... | 68 | 8 | 49.4 | 28.8 | 39.1 | 2.90 | 11 | 10 | 1 | 20 |
| November..... | 52 | -8 | 34.5 | 17.4 | 26.0 | 2.48 | 9 | 14 | 1 | 15 |
| December..... | 39 | -32 | 20.5 | 1.8 | 11.2 | 2.47 | 8 | 8 | 3 | 20 |

TANANA. Latitude 65° 10', longitude 152° 06'. Weather Bureau, observer

| | | | | | | | | | | |
|----------------|----|-----|------|-------|-------|------|----|----|----|----|
| January..... | 24 | -20 | 14.4 | 5.2 | 9.8 | 0.55 | 15 | 7 | 14 | 10 |
| February..... | 17 | -45 | 1.3 | -13.2 | -6.0 | .32 | 8 | 15 | 10 | 3 |
| March..... | 48 | -26 | 28.4 | 10.3 | 19.4 | .33 | 6 | 10 | 14 | 7 |
| April..... | 56 | 8 | 42.3 | 22.1 | 32.2 | .40 | 7 | 15 | 9 | 6 |
| May..... | 69 | 27 | 59.5 | 35.2 | 47.4 | 1.02 | 12 | 12 | 15 | 4 |
| June..... | 85 | 32 | 73.1 | 45.4 | 59.2 | 1.36 | 10 | 15 | 11 | 4 |
| July..... | 83 | 30 | 71.7 | 46.5 | 59.1 | 3.14 | 12 | 10 | 11 | 10 |
| August..... | 86 | 28 | 68.3 | 43.1 | 55.7 | 1.39 | 15 | 8 | 16 | 7 |
| September..... | 62 | 25 | 54.8 | 40.6 | 47.7 | 3.49 | 19 | 5 | 12 | 13 |
| October..... | 46 | -2 | 34.7 | 22.8 | 28.8 | 1.85 | 10 | 8 | 11 | 12 |
| November..... | 31 | -18 | 18.3 | 6.9 | 12.6 | .25 | 5 | 14 | 8 | 8 |
| December..... | 27 | -48 | -6.0 | -19.7 | -12.8 | .77 | 12 | 16 | 11 | 4 |

VALDEZ. Latitude 61° 07', longitude 146° 16'. J. A. McGilvray, observer

| | | | | | | | | | | |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| January..... | 44 | 15 | 36.9 | 26.5 | 31.7 | 10.86 | 21 | 0 | 3 | 28 |
| February..... | 39 | 0 | 27.2 | 11.5 | 19.4 | 2.36 | 7 | 9 | 3 | 16 |
| March..... | 42 | 18 | 36.5 | 29.3 | 32.9 | 12.89 | 21 | 1 | 8 | 22 |
| April..... | 48 | 17 | 41.0 | 30.9 | 36.0 | ----- | ----- | 11 | 3 | 9 |
| May..... | 62 | 30 | 49.6 | 35.3 | 42.4 | 1.44 | 14 | 15 | 9 | 7 |
| June..... | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| July..... | 76 | 44 | 60.5 | 48.2 | 54.4 | ----- | ----- | 5 | 6 | 17 |
| August..... | 68 | 43 | 62.2 | 48.0 | 55.1 | ----- | ----- | 13 | 1 | 6 |
| September..... | 59 | 33 | 55.3 | 38.0 | 46.6 | ----- | ----- | 11 | 1 | 3 |
| October..... | 67 | 23 | 46.7 | 35.8 | 41.2 | 11.49 | 17 | 11 | 1 | 19 |
| November..... | 47 | 20 | 35.9 | 26.9 | 31.4 | 4.29 | 11 | 13 | 4 | 13 |
| December..... | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |

WHITE MOUNTAIN. Latitude 64° 40', longitude 162° 20'. T. P. McCollister, observer

| | | | | | | | | | | |
|----------------|----|-----|------|-------|------|------|----|----|---|----|
| January..... | 33 | -28 | 24.0 | -7.7 | 8.2 | 0.21 | 6 | 22 | 7 | 2 |
| February..... | 28 | -34 | 18.6 | -10.6 | 4.0 | .07 | 3 | 24 | 4 | 0 |
| March..... | 47 | -25 | 31.9 | 11.0 | 21.4 | .40 | 6 | 22 | 6 | 3 |
| April..... | 54 | 6 | 41.0 | 17.3 | 29.2 | .02 | 1 | 26 | 4 | 0 |
| May..... | 62 | 10 | 52.8 | 23.1 | 38.0 | .05 | 3 | 28 | 0 | 3 |
| June..... | 88 | 30 | 72.8 | 40.5 | 56.6 | .02 | 1 | 25 | 3 | 2 |
| July..... | 85 | 34 | 73.8 | 44.6 | 59.2 | .28 | 5 | 21 | 5 | 5 |
| August..... | 89 | 32 | 70.5 | 40.7 | 55.6 | 1.86 | 6 | 18 | 6 | 7 |
| September..... | 64 | 28 | 53.7 | 36.2 | 45.0 | 3.27 | 19 | 6 | 7 | 16 |
| October..... | 50 | -3 | 38.7 | 20.8 | 29.8 | .65 | 5 | 24 | 3 | 4 |
| November..... | 50 | -20 | 32.2 | 12.3 | 22.2 | .18 | 5 | 20 | 3 | 7 |
| December..... | 18 | -32 | 2.0 | -13.4 | -5.7 | .07 | 4 | 20 | 8 | 3 |

YAKUTAT. Latitude 59° 33', longitude 139° 44'. Rev. E. M. Axelsson, observer

| | | | | | | | | | | |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| January..... | 48 | 28 | 41.8 | 34.4 | 38.1 | 29.45 | 24 | 4 | 1 | 26 |
| February..... | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| March..... | 48 | 30 | 42.7 | 34.5 | 38.6 | 19.83 | 24 | 2 | 5 | 24 |
| April..... | 52 | 25 | 45.8 | 36.4 | 41.1 | 14.72 | 21 | 8 | 4 | 18 |
| May..... | 60 | 33 | 52.5 | 39.6 | 46.0 | 5.35 | 16 | 11 | 1 | 19 |
| June..... | 78 | 39 | 60.5 | 46.6 | 53.6 | 5.69 | 9 | 15 | 1 | 14 |
| July..... | 66 | 41 | 58.8 | 49.3 | 54.0 | 10.35 | 19 | 13 | 1 | 17 |
| August..... | 64 | 44 | 59.8 | 49.7 | 54.8 | 9.60 | 16 | 11 | 5 | 15 |
| September..... | 58 | 35 | 56.4 | 43.4 | 49.9 | 4.92 | 8 | 15 | 6 | 9 |
| October..... | 57 | 31 | 49.9 | 39.0 | 44.4 | 24.96 | 23 | 7 | 2 | 22 |
| November..... | 50 | 18 | 41.1 | 32.0 | 36.6 | 9.26 | 13 | 17 | 1 | 12 |
| December..... | 47 | 18 | 37.8 | 29.9 | 33.8 | 17.98 | 22 | 4 | 0 | 27 |



